DOCUMENT RESUME

ED 197 442 EA 013 267

AUTHOR Padro, Susan
TITLE Survey of Staff Development and Curriculum Services for Quality Education. Part I: Labor-Intensiveness in School Board Administration: Focus on Curriculum Services and Staff Development Processes. Part II: Delphi Studies on Curriculum Services and Quality Education.
INSTITUTION Commission on Declining School Enrolments in Ontario, Toronto.
REPORT NO CODE-WP-8
PUB DATE Mar 78
NOTE 134p.: For related documents, see EA 013 260-308.
AVAILABLE FROM Publications Centre, Ministry of Government Services, 880 Bay St., 5th Floor, Queen's Park, Toronto, Ontario M7A 1N8 Canada (Part I: Record No. ON01566/CODE00289: $1.00 microfiche: Part II: Record No. ON01567/CODE00342: $1.00 microfiche).

EDRS PRICE MF01/PC0(Plus Postage.
DESCRIPTORS *Administrative Organization: *Boards of Education: *Curriculum Development: Data Analysis: *Declining Enrollment: Educational Administration: Educational Planning: *Educational Quality: Elementary Secondary Education: Flow Charts: Foreign Countries: *Job Simplification: Management Systems: Retrenchment: *Staff Utilization
IDENTIFIERS Delphi Technique: Ontario

ABSTRACT

By comparing a large and small school board in Ontario, this paper, in part 1, seeks to draw conclusions about the effects of declining enrollment on administrative functions and labor-intensiveness and, in part 2, analyzes educators' views on curriculum services and quality programs using the Delphi technique. The data for part 1, derived from management information system studies, indicate that, on a per-pupil basis, the large board does not seem more labor-intensive except in curriculum studies. However, the large board appears to engage in more inefficient processes because of the formal accountability procedures required in a larger staff. In part 2, the author finds that in the small district the curriculum services provided by the central administration are more important to the board than to the classroom teacher, but in the large district usefulness to the board and the classroom teacher is comparable. From data gathered on educators' views of quality education, the author concludes that the majority of educators rate primary level objectives in the highest category. Flowcharts, questionnaires, and analyses are included. (Author/WD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED197442

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

WORKING PAPER NO. 8

SURVEY OF STAFF DEVELOPMENT AND CURRICULUM SERVICES FOR QUALITY EDUCATION

SUSAN PADRO
Department of Educational Planning
The Ontario Institute for Studies in Education

MARCH, 1978

COMMISSION ON DECLINING SCHOOL ENROLMENTS IN ONTARIO (CODE)

R.W.B. JACKSON
COMMISSIONER

HOWARD B. HENDERSON
EXECUTIVE SECRETARY

252 Bloor Street West
Toronto, Ontario
M5S 1V6

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
B. M. Hildebrand
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EA 013 267

SURVEY OF STAFF DEVELOPMENT AND CURRICULUM SERVICES FOR QUALITY EDUCATION

SUSAN PADRO

Department of Educational Planning
The Ontario Institute for Studies in Education

March, 1978

This paper was commissioned by and prepared for the Commission on Declining School Enrolments in Ontario and is not to be cited or quoted without the permission of the Commission and the author.

This study reflects the views of the author and not necessarily those of the Commission or the Ministry of Education.

DEC 1 2 1980

LABOR-INTENSIVENESS IN SCHOOL BOARD ADMINISTRATION: FOCUS ON CURRICULUM SERVICES AND STAFF DEVELOPMENT PROCESSES

SUSAN PADRO

Department of Educational Planning

The Ontario Institute for Studies in Education

March 1978

Report to the Commission on Declining Enrolments: Part I

Labor-Intensiveness in School Board Administration: Focus on Curriculum Services and Staff Development Processes

Dr. Susan Padro
OISE

With the current crisis of declining enrolments in the school boards of Ontario, one of the critical questions that is being posed is the effect of reduced numbers of students on educational programs. This paper tackles the problem from the perspective of the school boards' administrative functions and labor - intensiveness in the areas of curriculum services and staff development: the two areas most directly related to educational programs. Two boards will be considered in this paper: the Peel Board and the Dufferin Board.

The Dufferin Board is an example of a small, rural board while the Peel Board represents a large, primarily urban board, but with rural components. Enrolment in the Dufferin board is relatively stable and projections for this board indicate continued stability or slight increase in enrolments in the next few years. The Peel Board, although not suffering from declining enrolments on the whole, has specific areas that are currently in sharp decline, such as South Peel. Table 1 compares the two boards on the basis of general characteristics:

Table 1. Comparison of the General Characteristics of the Peel and Dufferin Boards of Education

	Peel	Dufferin
No. of students	80,565	7260
No. of elementary schools	121	10
No. of secondary schools	22	2

For each board, the set of management functions at the central decision-making level will be analyzed in terms of labor - intensiveness, and the boards can then be compared on the basis of overall use of administrative personnel. The Curriculum and Staff Development functions of the two boards will then be analyzed in detail: both from the point of view of relative labor - intensiveness as well as in terms of the actual processes within these functions.

The purpose of comparing these boards is in anticipation of the possible effect of enrolment decline and contraction on large systems. Studying how small boards provide basically the same services as large ones, but on a smaller scale, can help boards in planning their contractions more smoothly.

The data for this report were derived from management information system studies the author has conducted at these two boards.[1] Therefore, the orientation of the functions, their definitions and analyses will be on the basis of information-decision interactions.

Overall Management Functions of the Two Boards

The management functions of the two boards will be described in terms of their relative labor-intensiveness. In defining labor-intensiveness, only major administrative positions at the central board level will be considered.

Tables 2 and 3 provide lists of the major management areas of the two boards, along with the key personnel who have primary involvement in these functions. The major management areas are those functions that are central to the board's operations and encompass the key decision functions of the board.

---

[1] S. Padro. Information Analysis for School Board Planning and Management: Dufferin Board of Education, Vols. I-III, OISE, 1977.

_____. Information System: Analysis for the Peel Board of Education, Vols. I-II, OISE, 1977.

N.B. Since these studies were conducted about two years ago, there may be minor differences between the data as reported here and the current situation.

TABLE 2. MANAGEMENT AREAS OF THE PEEL BOARD OF EDUCATION WITH PERSONNEL

Management Area	Sub-Categories	Personnel	Level of Involvement
1. Budget Process	1.1 Preparation	Superintendent of Admin. Services	Minor
		Superintendent Planning	Minor
		10 Superintendents of Schools (Areas 1-10)	Minor
		Superintendents	Minor
		Dept. Heads	Minor
	1.2 Control	Budget Officer	Major
		10 Superintendents of School (Field)	Minor
2. Accounting Function		Chief Accountant	Major
3. Supply Function	3.1 Purchasing	Supervisor of Purchasing	Major
		Supt. Plant	Minor
	3.2 Stores/ Inventory	Dept. Head (Stores)	Major
	3.3 Printing Services	Dept. Head (Printing)	Major
4. Accommodation Supply	4.1 Capital Projects	Superintendent Admin. Services (Finance)	Minor
		Admin. Assist. Planning	Minor
		Design & Const. Supervisor	Major
		Assistant Supervisor	Major
		Planning Officer	Major
		Superintendent of Planning	Major
5. Plant Operation and Maintenance	5.1 Operations	Supt. Plant	Major
		Supervisor of Maint. Op.	Major
		Supervisor Maintenance Engineering	Major
	5.2 Maintenance	Supervisor Central Mainenance Forces	Major
6. Transportation		Area Business Officers (2)	Major
7. Personnel Admin.	7.1 Salary Admin. -Job Evaluation	Personnel Administrator	Major
		Admin. Assistant to Supt. of Academic Affairs	Minor
	Description	Assistant to Personnel Admin.	Major
	-Payroll	Payroll Supervisor	Major
	-Benefits	Payroll Supervisor	Major
	7.2 Personnel Allocation	Admin. Assistant to Superintendent of Academic Affairs	Minor

Table 2 (cont'd)

Management Area	Sub-Categories	Personnel	Level of Involvement
8. Staff Development and Relations	8.1 Development	Superintendent of Schools, Program	Major
		Education Liaison Officer	Major
		Chairman Professional Dev.	Major
	8.2 Relations	Admin. Assistant to Superintendent of Academic Affairs	Major
	8.3 Evaluation -Academic	Admin. Asssitant to Superintendent of Academic Affairs	Major
	-Non-Academic	Personnel Admin.	Major
9. School Curriculum (Program)	9.1 Development & Evaluation	Superintendent of Schools Program	Major
		12 Coordinators	Major
		Research Officer	Major
10. Special Student Services	10.1 Special Ed.	Superintendent Special Services	Major
	10.2 Attendance	Chief Attendance Counsellor	Major
	10.3 Psychological Services	Chief Psychologist	Major
11. Continuing Ed.		Principal Cont. Ed.	Major
12. External Relations	12.1 Ministry Reports		
	-June Report	Admin. Assistant Planning	Minor
	-Financial Report	Accounting	Minor
	12.2 September School Report	Admin. Assistant (Planning)	Minor
	12.3 General	Director	Major
		Superintendent Business Affairs	Minor
		Superintendent Academic Affairs	Minor

Total: Director + 54 Administrators

TABLE 3. MANAGEMENT AREAS OF THE DUFFERIN BOARD OF EDUCATION WITH PERSONNEL

Management Area	Sub-Categories	Personnel	Level of Involvement
1. Budget	1.1 Preparation	Director/Secretary Treasurer	Major
		Supt. Academic of Affairs	Minor
		Controller of Finance	Minor
	1.2 Control	Director/Secretary Treasurer	Minor
		Controller of Finance	Minor
		Supt. of Academic Affairs	Minor
2. Accounting		Controller of Finance	Major
3. Supplies		Controller of Finance	Minor
4. Accommodation Supply		Executive Assistant to the Director	Major
5. Plant Operations & Maintenance		Executive Assistant to the Director	Major
6. Transportation		Controller of Finance	Minor
7. Personnel Admin.	7.1 Salary Admin.	Controller of Finance	Minor
	7.2 Personnel Allocation	Supt. of Academic Affairs	Minor
8. Staff Development & Relations	8.1 Development	Supt. of Academic Affairs	Major
	8.2 Relations	Supt. of Academic Affairs	Minor
		Director/Secretary Treasurer	Minor
	8.3 Evaluation		
	Academic	Supt. Academic Affairs	Major
		Director/Secretary Treasurer	Minor
	Non-Academic	Controller of Finance	Minor
9. School Curriculum (Program)		Supt. Academic Affairs	Major
10. Special Student Services		Supt. Academic Affairs	Minor
		Special Services Consultant	Major
11. Continuing Ed.		Executive Assistant to the Director	Minor
12. External Relations		Director/Secretary Treasurer	Major

Total: Director + 3 Superintendents

The tables also indicate whether the particular management function requires a major or minor time involvement on the part of the administrator listed. A "major" level of involvement would be defined as at least 1/3 of the administrator's time.

These tables indicate that the two boards provide essentially the same basic services: the Dufferin Board does so with a central office administrative staff of one Director and 3 Superintendents,* while the Peel Board is listed with one Director and approximately 54 administrators. It must be noted that the staff listed for the Peel Board represents only the top administrative level who have responsibility for the management areas listed and omits most personnel below the fourth level of the organization chart (there are six levels in all). This listing does, however, cover most of the board's central administration, including the 10 Superintendents of Schools (Family). It must also be noted that this listing is not meant as a complete inventory of all the board's management functions, only the ones that the board itself has designated as its key areas.

In order to provide a fair comparison of the boards it is necessary to allow for the large difference in number of pupils served by these boards. Thus the Peel Board, with 55 administrators (as noted) and 80,565 students has 1464.8 students per key administrator, while the Dufferin Board, with 4 administrators and 7260 students has 1815 students per administrator. These figures are roughly comparable, although the ratio of the Peel Board would be further reduced if total administrative staff at the central board level were considered. However, we might note that a recent addition to the Dufferin Board staff (at the level of Assistant Superintendent of Program) would also serve to reduce this ratio at the Dufferin Board to 1452.

*The board has recently hired an Assistant Superintendent (Program) but he was not on staff at the time of the analysis.

Studying areas 8 and 9 of the Peel Board list of major management areas, Staff Development and Relations and School Curriculum (Program), it can be noted that these are the two top-ranking areas in labor-intensiveness at the board level. They involve a major commitment on the part of six and fourteen high-ranking administrators, respectively. At the Dufferin Board both these areas are handled by one Superintendent with some involvement of the Director. The remainder of this paper will focus on these two areas of school board administration and study and compare the processes utilized by the two boards in achieving similar goals.

STAFF DEVELOPMENT

DUFFERIN CASE STUDY

At the Dufferin Board, the Staff Development function is handled as a major component of the role of the Superintendent of Academic Affairs, comprising roughly one-third of his duties. Table 4 presents a list of the Staff Development functions performed by this Superintendent.[2]

At this point, the specific processes involved in these functions can be traced in order to note the level of complexity of each activity. Figures 1-11 provide fairly detailed flowcharts of these processes. They indicate not only the sequence of activities and decisions, but also the flows of information associated with these functions.[3] Perusal of these flowcharts indicates that the processes for these activities at the Dufferin Board accomplish the professional development needs of the staff with relative simplicity. Due to lack of organizational hierarchy, little or no flows of information between different levels of decision-makers occur. The types of information indicated

---

[2] Code numbers on activities have been altered for this paper to correspond to the classification scheme used at the Peel Board.
Source: S. Padro, Information Analysis...., op.cit.

[3] Source of Figures 1-11: S. Padro, op.cit, Appendix J.

TABLE 4. STAFF DEVELOPMENT ACTIVITIES OF THE DUFFERIN BOARD

No.	Activity	No.	Sub-Activities
8.1	Resource material utilization/ involvement.	8.1.1	Resource Material Utilization/ Involvement in P.D. Programs.
		8.1.2	Encourage Development of Resources.
8.2	Planning of Professional Development Programs.	8.2.1	Objectives for Professional Development Program.
		8.2.2	Planning of Professional Development Program.
		8.2.3	Distribution of Professional Development Overload.
		8.2.4	Evaluation System for Professional Development Program.
		8.2.5	Co-ordination and Supervision of P.D.
		8.2.6	P.D. Program Modification
8.3	Resources for Professional Development Programs		
8.4	Information dissemination on Professional Development	8.4.1	Distribution of Information on P.D. to Teachers.
		8.4.2	Information Distribution on Innovative Techniques to Teachers.
		8.4.3	Encourage Innovation by Teachers

Source: S. Padro. Information Analysis for School Board Planning and Management: Dufferin Board of Education, Vol. III, Appendixes G-H, OISE, 1977.

are usually those required as inputs for the activity processes rather than for approval purposes. This is most likely due to the fact that the Superintendent in charge of the processes is also empowered/ required to make the decisions as well as implement them.

PEEL CASE STUDY

The Staff Development function at the Peel Board, as seen in Table 2, required a major time commitment on the part of three high-level administrators of the board: the Superintendent of Schools(Program), the Education Liaison Officer and the Chairman of Professional Development. Table 5 lists the specific activities subsumed under the Staff Development function for this Board.[4] This table also indicates the participants associated with each activity, providing greater insight into the breadth of staff participation in the process. It may be noted that of the 9 activities listed, five relate to liaison and information dissemination activities, while four deal with P.D. program development at the Board level.

The activities, as listed, can then be further broken down into their components. In order to understand the processes as they occur, flowcharts are presented for each activity. Figures 12-19 provide the flowcharts for the main staff development activities.[4] Figure 12 is an overview of the staff development function as a whole, while figures 13-19 present the specific breakdown of processes for most activities on table 5. No flowcharts are available, however, for activities 8.1.4, 8.1.5, 8.1.6, 8.1.7 and 8.1.8 since the processes for development of various types of workshops or study programs and of liaison functions were quite similar to the ones for which flowcharts had been prepared.

Some points of interest can be determined from these flowcharts and activity statements. It is clear that a very wide range of contacts and liaisons are maintained by the board which are useful for P.D. activities.

[4]Source: S. Padro, Information System...., op.cit., Appendix B,C.

TABLE 5. STAFF DEVELOPMENT ACTIVITIES AT THE PEEL BOARD

No.	Activity	Participants
8.1.1	Liaison with Teacher Training Institutions	Teacher Education Officer
8.1.2	Board sponsored Ministry of Education courses	Program Department P.D. Council
8.1.3	Credit and Non-Credit Board Courses re:	
	(a) New Teachers	Coordinators Consultants Teacher Education Officer
	(b) Department Heads	Teacher Education Officer Existing Heads Former Heads
	(c) Leadership Training	Teachers Superintendent Academic Affairs Board
	(d) Substitute Teachers	Teacher Education Officer Superintendent of Schools (Program)
	(e) Parent Volunteers	Volunteers in schools
8.1.4	In-service and Workshops	Superintendent (Program) Coordinators Resource Teachers
8.1.5 & 8.1.6	Development of Local Program (Supplemental of Study Committees)	Program Department Teachers
8.1.7	Liaison with Community, Industry	Individual School Technical & Comm. Directors Businessmen P.D. Council
8.1.8	Liaison with Teachers' Federations	P.D. Council O.S.S.T.F. Education Assn. Sheridan College Liaison Committee
8.1.9	Professional Activity Days	Board Teachers Federation Program Dept.

It is also evident that a great variety of formal forms are processed in carrying out these activities, and that information typically flows through a number of levels in the organization in order for decisions to be made and acted upon.

COMPARISON OF DUFFERIN AND PEEL BOARDS IN STAFF DEVELOPMENT:

The staff development activities of the two boards can now be compared on the basis of:

(a) similarity of functions

(b) formalization of forms, reports structures

(c) organizational levels through which information passes prior to approval and action being taken.

Functions. A comparison of the functions of the two boards (tables 4 and 5) yields the following overall results:

Function	No. of Major Activities	
	Peel	Dufferin
1. Professional Development program planning & implementation by board	5	3
2. Information dissemination for P.D.	(not separated from programs)	1
3. Liaison with external agencies for P.D.	4	(none defined specifically)

Thus, it can be seen that, although both boards concentrate their P.D. efforts in the area of actual program planning and implementation the Peel Board also has a heavy involvement in liaison with external agencies: an involvement not specifically defined for the Dufferin Board. Function 2 above does not seem to carry too much weight with either board, but it is interesting to note that the Dufferin board has defined this as composing one major activity area. This may be an indication that a small board may effectively utilize information dissemination activities to substitute, to

some extent, for more elaborate and expensive program development and implementation.

A general perusal of the flowcharts also indicates that the Peel Board has a much more elaborate and extensive set of processes defined in each activity. This may well be due to the fact that, with more staff participating in various different areas of the activities, greater delineation of the steps is both possible and necessary. In a small board like Dufferin, however, much of the processes can remain relatively general and informal since a single individual is involved.

Formalized Documents. In the discussion on the flowcharts of the activities of the two boards, it was noted that the Peel Board appeared to have more formalized documents in the processes relating to staff development than the Dufferin Board did. Formalized documents are standardized forms which must be completed in a specified manner. Closer scrutiny of these flowcharts reveals that the Dufferin board has approximately 8 such documents, while the Peel Board has at least 16 such forms identified on the flowchart. Considering the great difference in size of these two boards, this difference is quite minimal, but nonetheless indicates some saving in paperwork on the part of the smaller board.

Hierarchy of Approvals. Detailed study of the flowcharts of the two boards indicates a distinct difference in the number and hierarchy of approvals which must be given prior to certain actions being implemented. With the lack of administrative hierarchy at the Dufferin Board, it is certainly to be expected that there would be little need or leeway for hierarchical levels of approvals on a recommended course of action. Indeed, the flowcharts indicate no instance in which a formal approval was required for an activity planned by the Superintendent of Academic Affairs at the Dufferin Board. In

the case of the Peel Board, however, there are three instances noted on the flowcharts where formal approvals beyond those of the personnel primarily responsible for the function are required.

CURRICULUM SERVICES

DUFFERIN CASE STUDY

The Curriculum Services function at the Dufferin Board is one of the major responsibilities of the Superintendent of Academic Affairs, and comprises approximately one-third of his duties. Table 6 lists the major components of the curriculum service functions at this board, with a corresponding set of activities within each function.[5]

TABLE 6: CURRICULUM SERVICES ACTIVITIES OF THE DUFFERIN BOARD

9.1 Curriculum development	9.1.1 Assessment of current program 9.1.2 Review of present curriculum in print 9.1.3 New curriculum needs 9.1.4 Ministry of Education Guidelines - implications for curriculum 9.1.5 Set priority of needs
9.2 Assessment of Academic Program	

Flowcharts of the specific processes defined in table 6 are provided in figures 20-26.[5] Once again, it can be seen that the processes outlined are relatively simple and uncomplicated. Detailed breakdown of the processes is often unnecessary, since a single individual carries them out. As a result, the essential functions can be carried out with relatively little formalization. The only indication of requirements for formal approval is in the initiation of new programs.

[5]Source: Information Analysis...., op.cit., Appendix G,H,J.

PEEL CASE STUDY

From the list of management areas in table 2, it can be seen that the management area of School Curriculum (Program) utilizes the major portion of time of 14 high-ranking administrators: the Superintendent of Schools (Program), 12 Coordinators and the Research Officer. The specific activities encompassed in the area of School Curriculum are defined in Table 7. From this table, one can see a more detailed list of the range of participants associated with each activity. The table indicates that there are 3 major areas of interest: a) review and setting objectives, b) program design and c) evaluation and implementation. A total of eleven activities is subsumed under these major groupings, seven of which fall within the last major category.

These activities can be further analyzed via the flowcharts presented in figures 27-30.[6] Figure 27 presents an overview of the entire set of activities within the curriculum area, as listed in table 7. Figures 28-30 are a further breakdown of the three major activities in the process: development of objectives, program design and evaluation and implementation. Perusal of these flowcharts indicates the complex processing and approval stages required in the area of School Curriculum. The process can be seen however, to be a very thorough one, with a broad range of board and external personnel involved in various stages. The use of committees is also quite extensive in many of the key steps, where reviews, revisions and approvals take place.

---

[6] Source: S. Padro, Information System...., op.cit.

TABLE 7. SCHOOL CURRICULUM (PROGRAM) - PROGRAM DEVELOPMENT AND EVALUATION AT THE PEEL BOARD

No.	Activity	Participants
9.1.1	Assessment of related programs	Staff Committee Parents Teachers Superintendents C.D.C. Federation Chief Psychologist
	Development of Objectives	Staff Committee Superintendents Superintendents (Program) Chief Psychologist
	Approval of Objectives	Curriculum Development Coun. (Admin. Council Bd.)
9.1.2	Design of Draft Core Program	Curriculum Committee Curriculum Asst. Coordinator External Personnel -Ministry -OISE -Boards Superintendent of Sch. Program
9.1.3	Selection of Evaluation Methods	Staff Committee C.D.C. Superintendent Curriculum Superintendent School Program
	Evaluation of proposed core program material	Experts -Ministry -Other Boards -Peel -Superintendent Curr. and Superintendent -Staff Cttee. -C.D.C. -Admin. Council
	Approval of Program	C.D.C. Admin. Council Program Committee Board

Source: S. Padro, Information System: Analysis for the Peel Board of Education, Vol. 11, 1977.

Table 7 (cont'd)

No.	Activity	Participants
	Dissemination of Program	Curriculum Asst. Resource Teachers Teachers Superintendent of School (Program)
	Implementation	Superintendent of Schools (Family) Principal Teachers
	Ongoing Evaluation of Program	Teachers Principals Resource Teachers Research Officer
	Periodic Revision of Program	Staff Committee C.D.C. Admin. Council -perhaps receiving report to program committee

COMPARISON OF DUFFERIN AND PEEL BOARDS IN CURRICULUM SERVICES:

The Peel and Dufferin Boards' curriculum processes can be compared on the same basis as were the Staff Development activities:

(a) similarity of functions

(b) formalization of forms, reports

(c) hierarchy of approval processes

Functions. Analysis of the curriculum functions of the two boards, extracted from tables 6 and 7, provides the following comparison after allowing for differences in terminology and level of detail:

Function	No. of Major Activities	
	Peel	Dufferin
1. Setting Objectives	1	1
2. Curriculum Development	2	5
3. Curriculum Design	1	0
4. Evaluation, Implementation & Revision	6	1

From this comparison, it is evident that the two boards fulfil about the same set of functions, but with different levels of emphasis. While the Peel Board's central office activities are focussed upon curriculum development and evaluation, implementation and revision, the main thrust of the Dufferin Board seems to be in the area of curriculum development activity. None of the activities specified for the Dufferin Board deal with the actual design of programs, clearly a result of the lack of staff available at the central board level to become involved in such a detailed level of activity. Such functions tend to be carried out by ad hoc committees or individuals at the school level

or through professional development programs. In contrast, the heavy involvement of Peel Board personnel in activities related to evaluation, implementation and revision processes could not be accomplished without the availability of adequate numbers of staff.

Formalized Documents. A comparison of the flowcharts of the curriculum activities of the two boards permits an analysis of the extent to which standardized documents and reports are required in these functions and the extent to which size of board is related to such formal structures. The result of such an assessment indicates that the Dufferin Board records 9 instances of formal report/document requirements, while the Peel Board presents 26 such documents. Thus, it can be seen that the large board requires nearly three times the amount of formal paperwork as the small one.

Hierarchy of Approvals. In the area of curriculum activities, one can note a marked contrast between the two Boards in terms of the number of approvals required in the organizational hierarchy. In the Dufferin Board, the only formal approvals indicated on the flowcharts are the two levels of approval required for new program development. At the Peel Board, however, the curriculum area indicates 9 instances of formal reviews and approvals beyond the individual responsible for the function. Thus, one may conclude that there is, indeed, a preponderance of what may be called "bureaucratic red tape" in a large board, as compared to the small one in the area of curriculum. This is not surprising, since the hierarchical structure and large numbers of staff does not allow for much of the informal feedback that can occur in a small board such as Dufferin. Therefore, this is the only way in which a large board can endorse accountability by its staff as well as provide inputs to the process before final implementation of a decision.

SUMMARY AND CONCLUSIONS

This paper has been an attempt to analyze administrative processes at the Dufferin and Peel Boards of Education in terms of:

1. Labor-intensiveness of overall management functions at the central board level.
2. Staff development: processes and labor-intensiveness
3. Curriculum Services: processes and labor-intensiveness

1. The results of the analysis on overall labor-intensiveness indicated that:

   a. Both boards accomplish the same set of general functions

   b. The Peel Board does so with a far greater number of central administrators than the Dufferin Board.

   c. On a per-pupil basis, the Peel Board is not much out of line with the Dufferin Board in terms of number of administrators.

2. In the area of Staff Development, the following results were obtained:

   a. Labour. The Dufferin Board utilizes about one-third of the time of one Superintendent, while the Peel Board requires a major time commitment of approximately 2 1/3 board officials.

   b. Functions. Both boards serve about the same functions, although the Peel Board has a far heavier concentration on liaison activities and has more than twice the total number of activities.

   c. Formalized Documents. The Peel Board utilized about twice the number of formalized documents in its processes of staff development than did the Dufferin Board.

   d. Hierarchy of Approvals. No formal approvals were indicated as being requisite to the staff development functions of the Dufferin Board, while in the Peel Board, formal approvals were required at three points.

3. In the area of Curriculum Services, the following results were found:

   a. Labour. At the Dufferin Board, this area comprises one of the major functions of one Superintendent, comprising about 1/3 of his total duties. At the Peel Board, this area utilizes a major portion of the time of 14 administrators (forming a commitment equivalent to about 5 1/3 FTEs).

   b. Functions. Both boards provide approximately the same or equivalent functions, with the exception that the Dufferin Board does not appear to be involved in specific curricular design at the level of the central board. The main emphasis in the Dufferin Board seems to be on Curriculum Development functions, while the Peel Board appears to concentrate on the Evaluation, Implementation and Revision areas.

   c. Formalized Documents. The Peel Board indicates almost three times as many formalized documents as the Dufferin Board for this management area, listing 26 and 9 documents, respectively.

   d. Hierarchy of Approvals. The Dufferin Board notes 2 approvals, while the Peel Board notes 9 approvals required: indicating more than four times as many in the large board as in the small board.

The above summary of the comparison of a large and small board allow us to tentatively draw several conclusions. First, there is no clear indication, on a per-pupil basis, that the large board is more labor-intensive than the small one. In the area of curriculum services, however, there does seem to be a disproportionately intensive use of labor on the part of the large board. However, both in the Staff Relations and Curriculum Services components, the large board appeared to be performing a somewhat broader scope of activities than could the small board.

In terms of greater formalization and bureaucratic procedures, it seems evident that a large board must engage in such "inefficient" processes to a much larger extent than required in a small board, most likely due to the greater need for formal accountability procedures with large numbers of staff.

It is hoped that, as large boards show evidence of declining enrolments, some of the positive characteristics of small boards, as outlined in this paper, could be incorporated into their structures, while the advantages indicated in the large board are not lost.

References

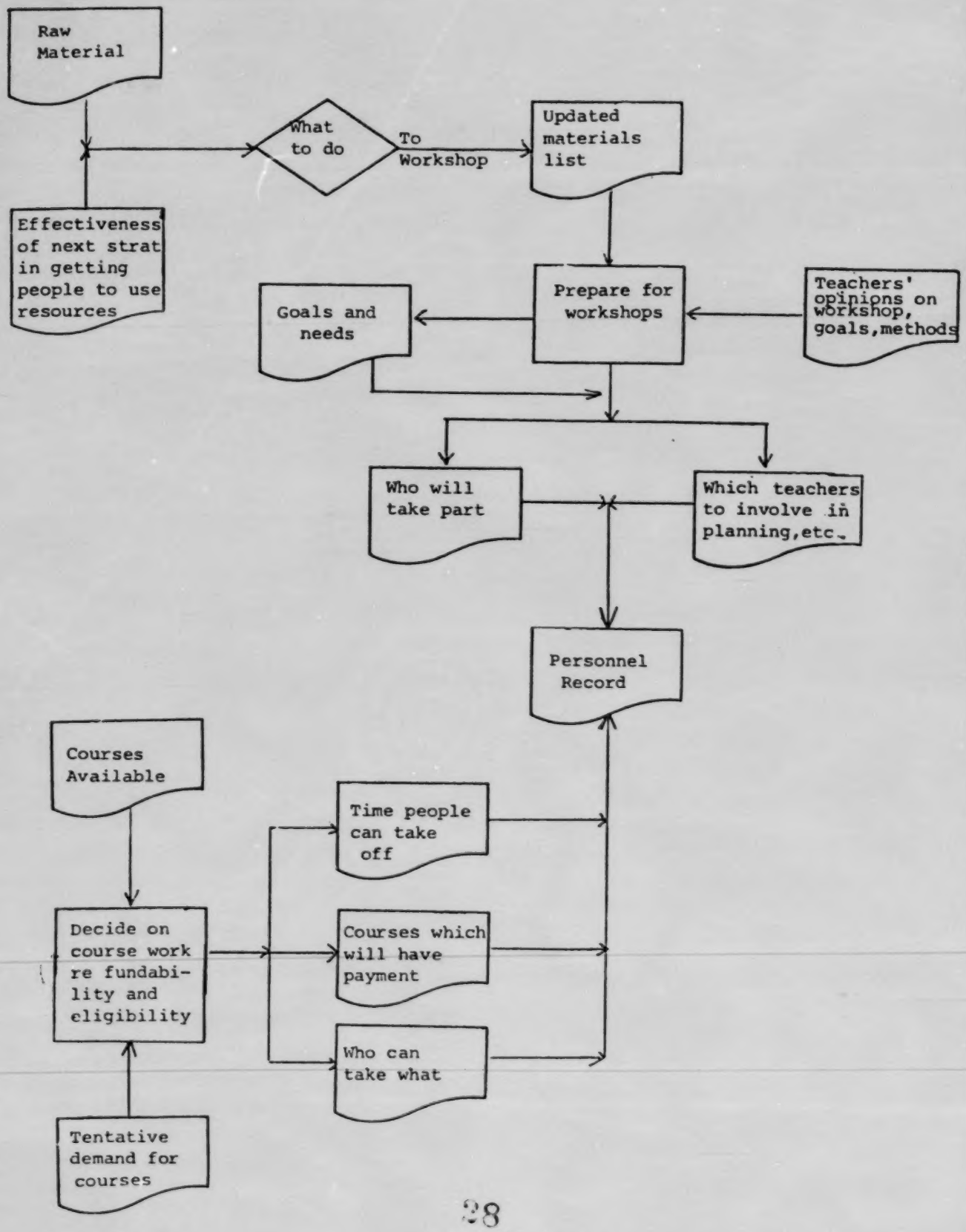
S. Padro, Information System: Analysis for the Peel Board of Education, Vols. I-II, Department of Educational Planning, The Ontario Institute for Studies in Education, 1977.

S. Padro, Information Analysis for School Board Planning and Management: Dufferin Board of Education, Vols. I-III, Department of Educational Planning, The Ontario Institute for Studies in Education, 1977.

FLOWCHARTS: FIGURES 1-30

D2,3,9/S09(a) Figure 1. Dufferin Board - Activity 8.1.1

RESOURCE MATERIAL UTILIZATION/INVOLVEMENT


Raw Material
What to do
To Workshop
Updated materials list
Effectiveness of next strat in getting people to use resources
Goals and needs
Prepare for workshops
Teachers' opinions on workshop, goals, methods
Who will take part
Which teachers to involve in planning, etc.
Personnel Record
Courses Available
Time people can take off
Decide on course work re fundability and eligibility
Courses which will have payment
Who can take what
Tentative demand for courses

D2,3,9/S09(b) Figure 2. Dufferin Board - Activity 8.12

ENCOURAGE DEVELOPMENT OF RESOURCE MATERIAL

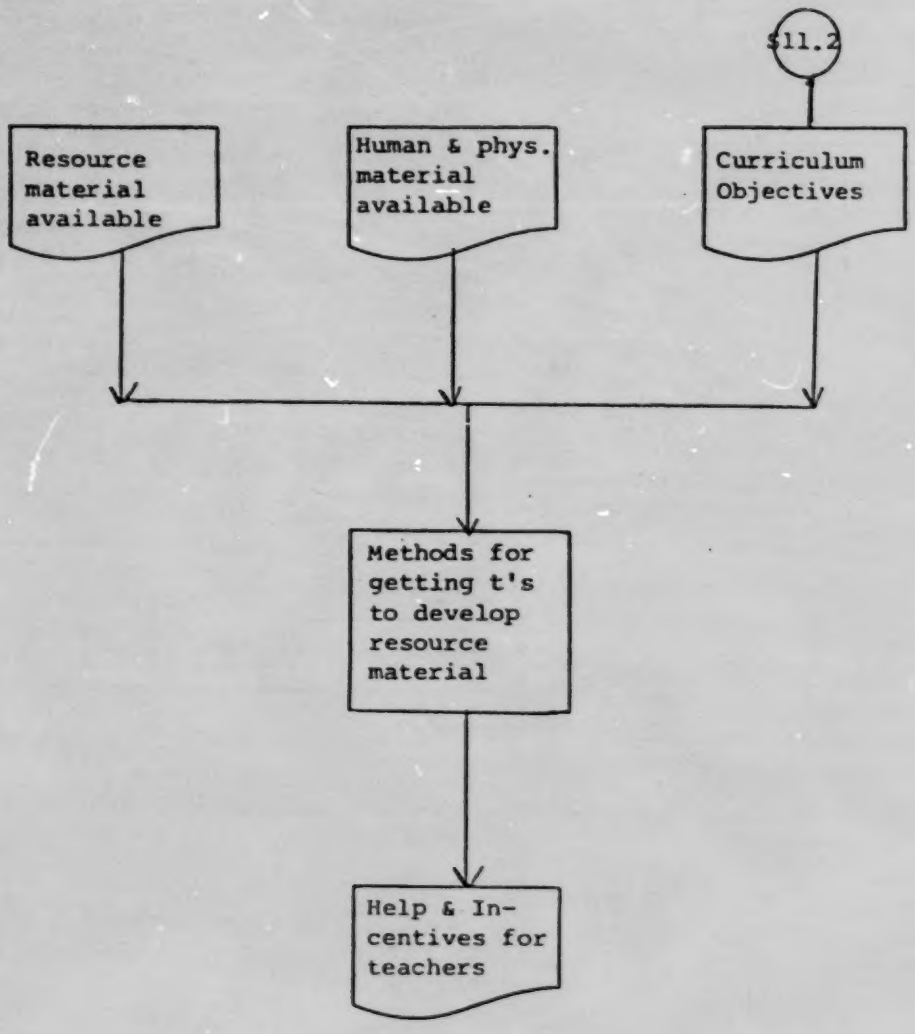

S11.2
Resource material available
Human & phys. material available
Curriculum Objectives
Methods for getting t's to develop resource material
Help & Incentives for teachers

Figure 3. Dufferin Board - Activity 3.2.1

D2,3,1/S11.2 OBJECTIVES FOR PROFESSIONAL DEVELOPMENT PROGRAM

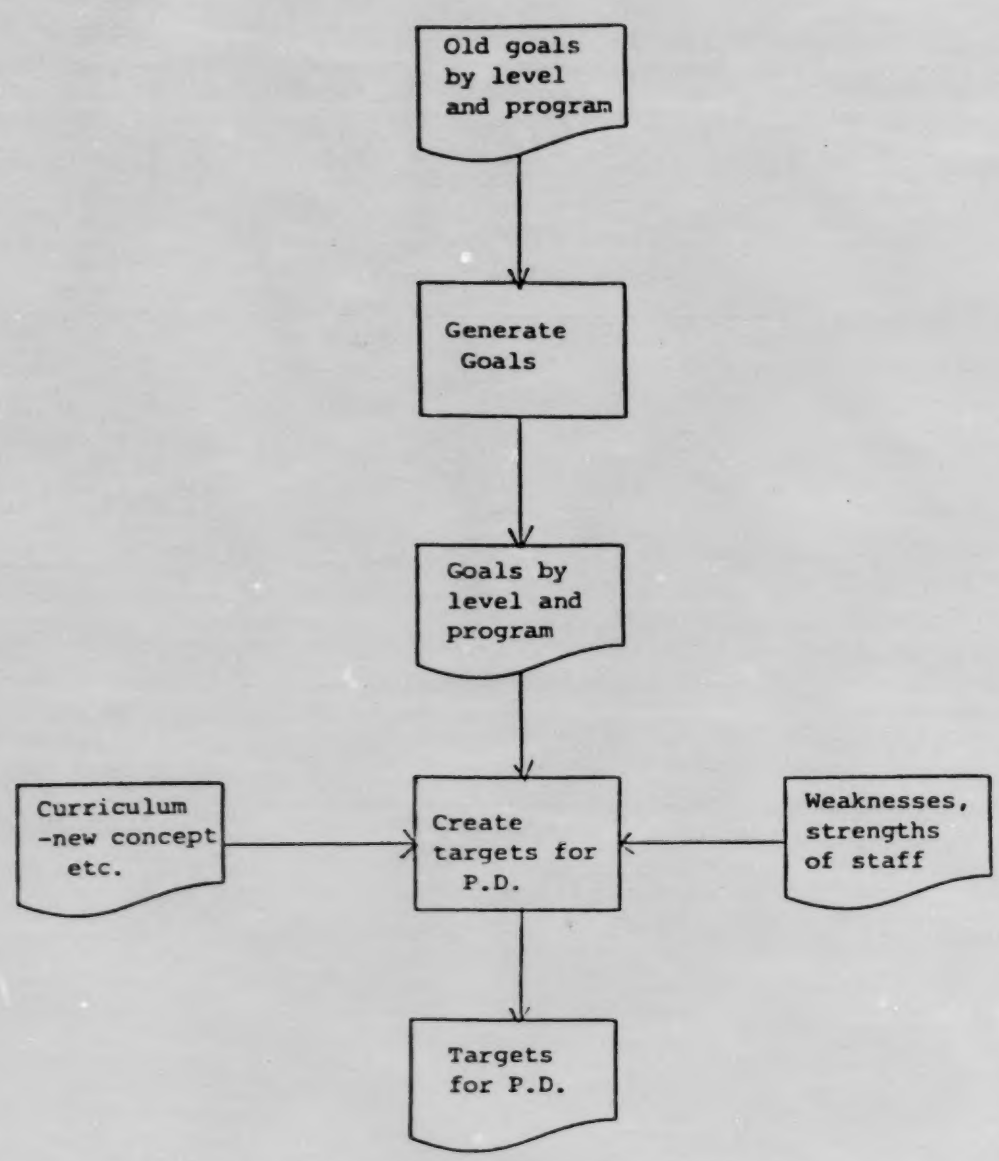

Old goals by level and program
Generate Goals
Goals by level and program
Curriculum -new concept etc.
Create targets for P.D.
Weaknesses, strengths of staff
Targets for P.D.

Figure 4. Dufferin Board - Activity 8.2.2

D,2,3,4/S11.1 PLANNING OF PROFESSIONAL DEVELOPMENT PROGRAM

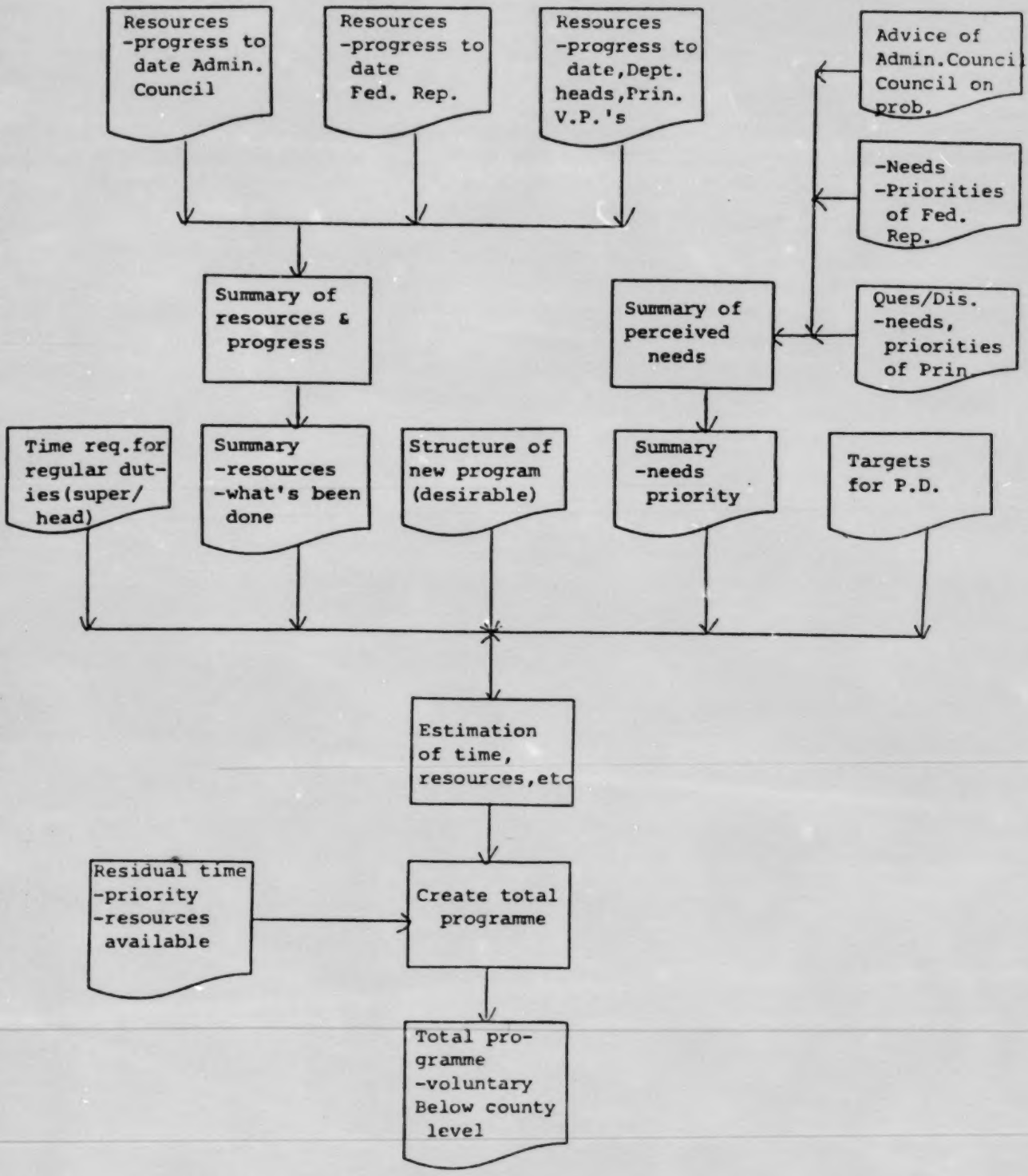

Resources -progress to date Admin. Council
Resources -progress to date Fed. Rep.
Resources -progress to date,Dept. heads,Prin. V.P.'s
Advice of Admin.Council Council on prob.
-Needs -Priorities of Fed. Rep.
Summary of resources & progress
Summary of perceived needs
Ques/Dis. -needs, priorities of Prin.
Time req.for regular duties(super/ head)
Summary -resources -what's been done
Structure of new program (desirable)
Summary -needs priority
Targets for P.D.
Estimation of time, resources,etc
Residual time -priority -resources available
Create total programme
Total programme -voluntary Below county level

Figure 5. Dufferin Board - Activity 8.2.3

D2,3,10/S11.5 DISTRIBUTION OF PROFESSIONAL DEVELOPMENT WORKLOAD

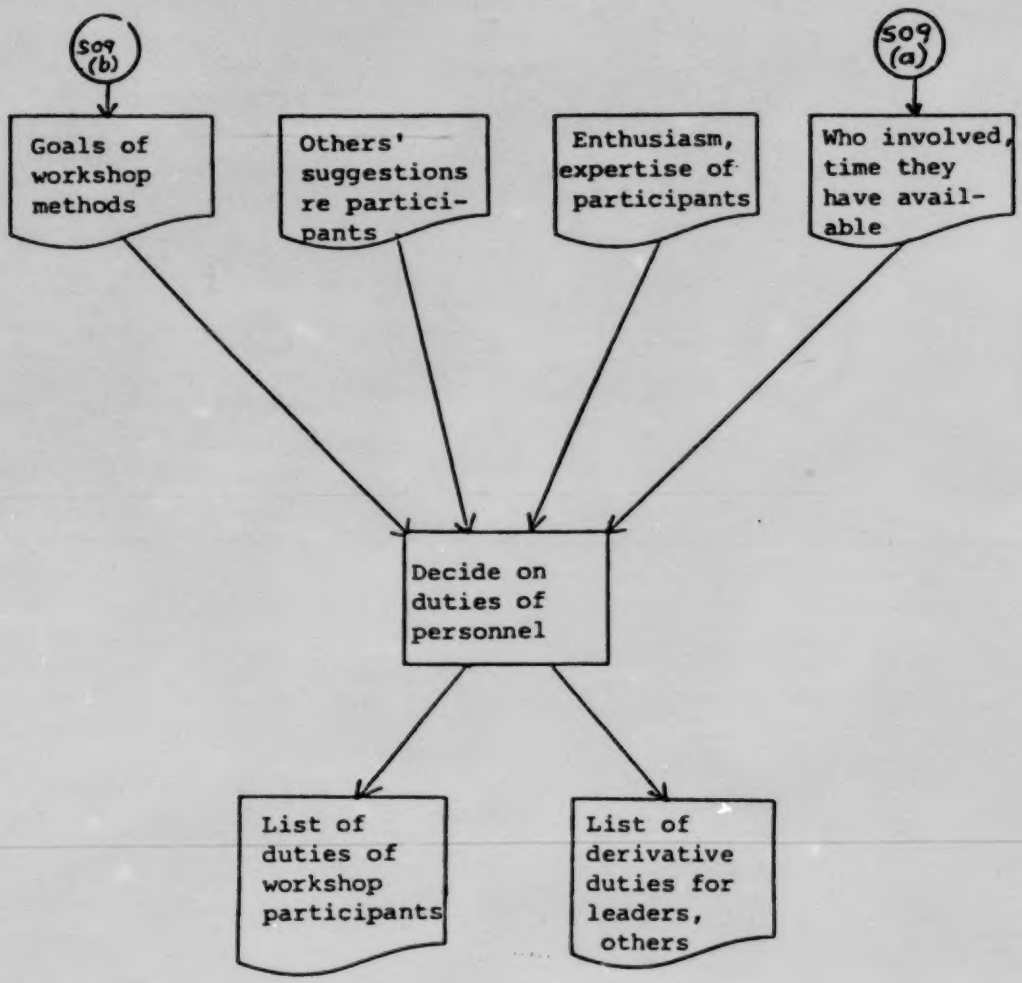
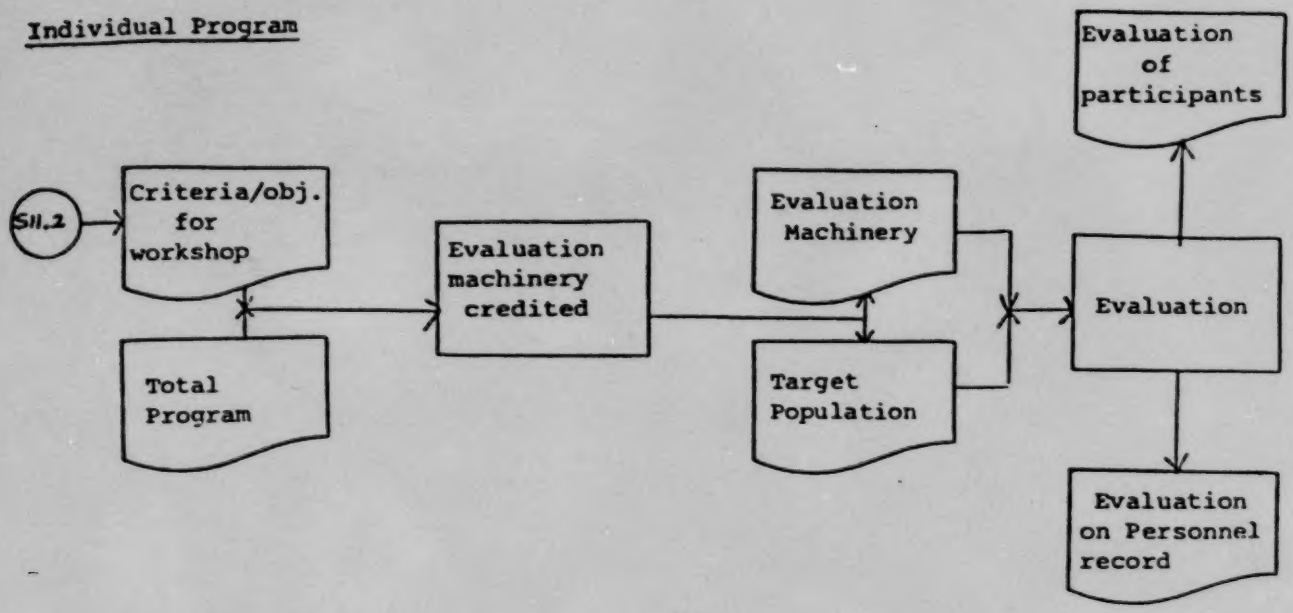

S09 (b)
S09 (a)
Goals of workshop methods
Others' suggestions re participants
Enthusiasm, expertise of participants
Who involved, time they have available
Decide on duties of personnel
List of duties of workshop participants
List of derivative duties for leaders, others

Figure 6. Dufferin Board - Activity 8.2.4

D2,3,12/S11.3 EVALUATION SYSTEM



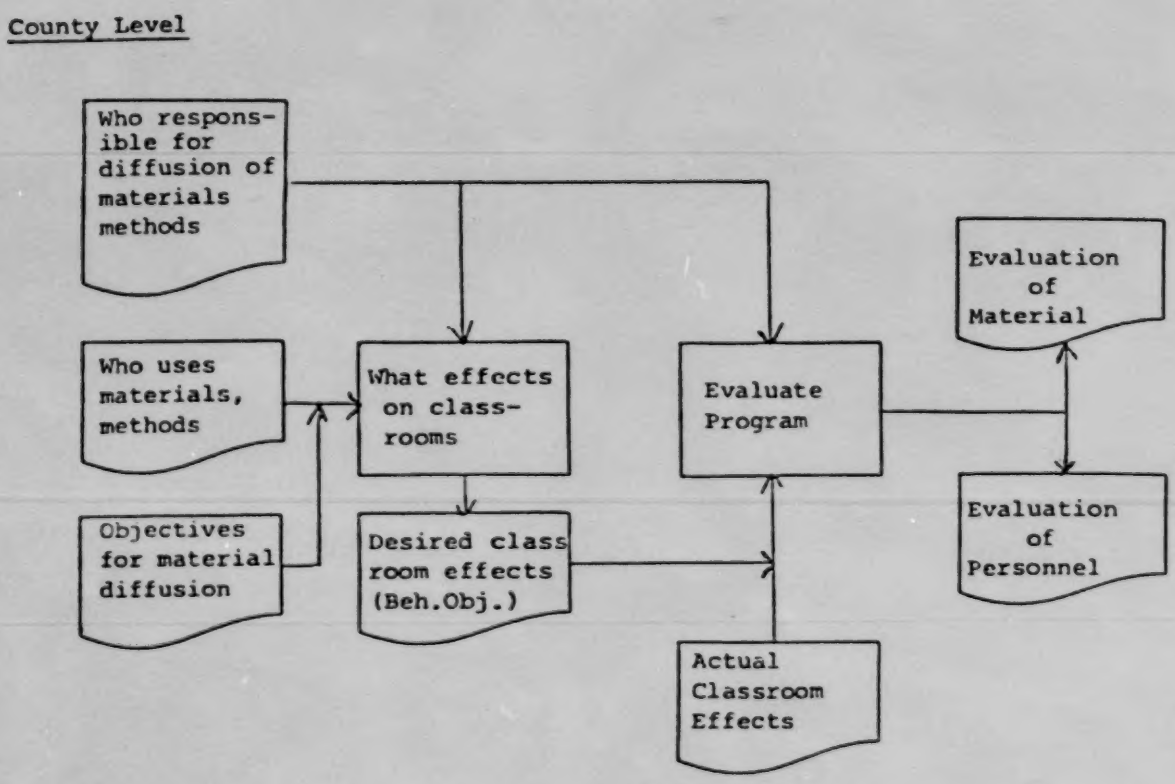


Figure 6a. Dufferin Board - Activity 8.2.6

D1,2,7/S15 P.D.PROGRAM MODIFICATION

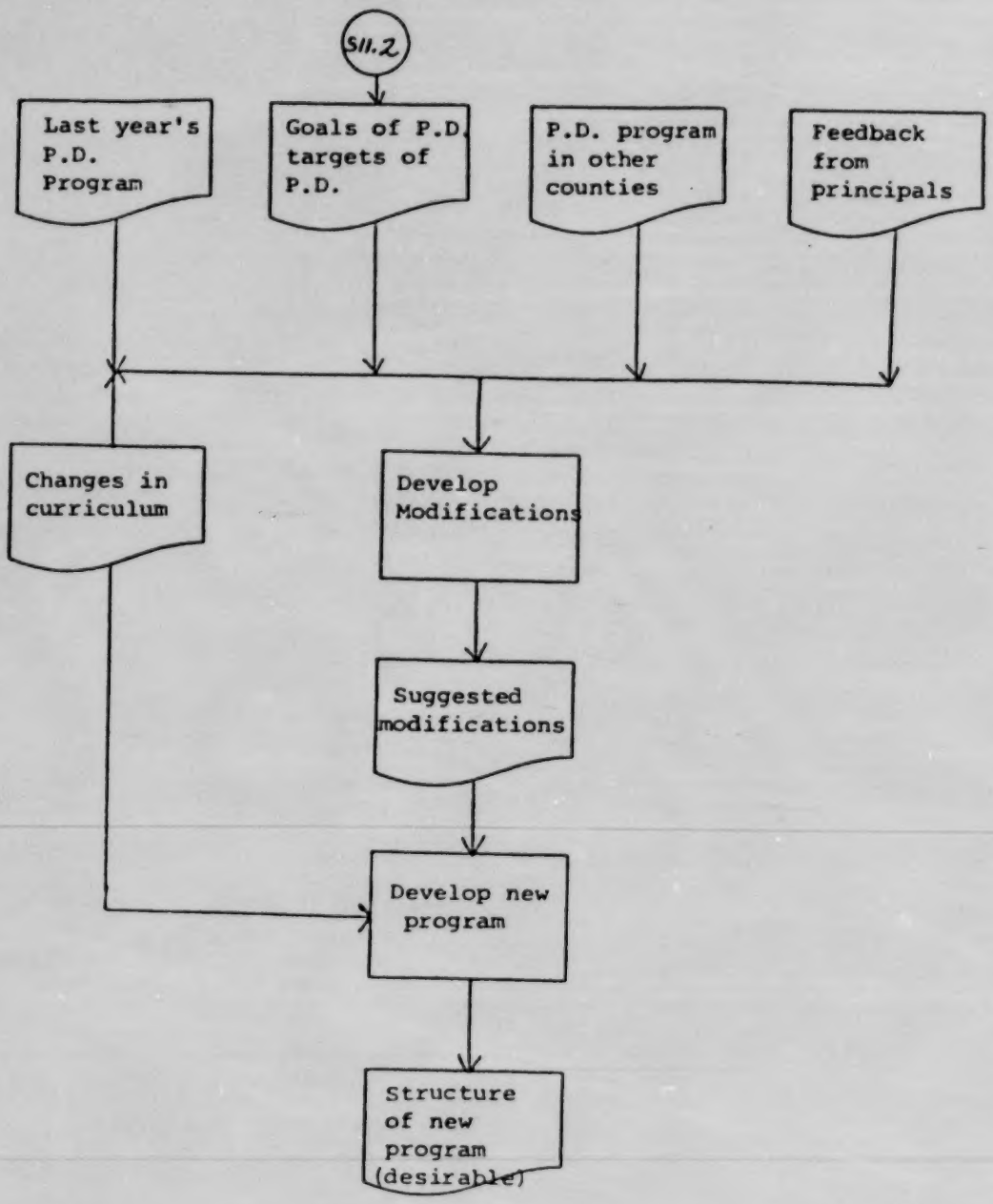


Figure 7. Dufferin Board - Activity 8.2.5

D2,1,7/S11.4 CO-ORDINATION & SUPERVISION OF PROFESSIONAL DEVELOPMENT

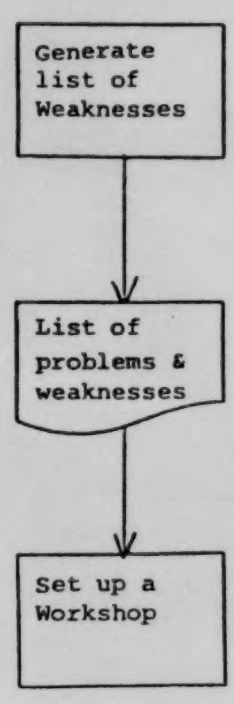


Figure 8. Dufferin Board - Activity 8.3

D2,3,5/S12 RESOURCES FOR PROFESSIONAL DEVELOPMENT PROGRAMS

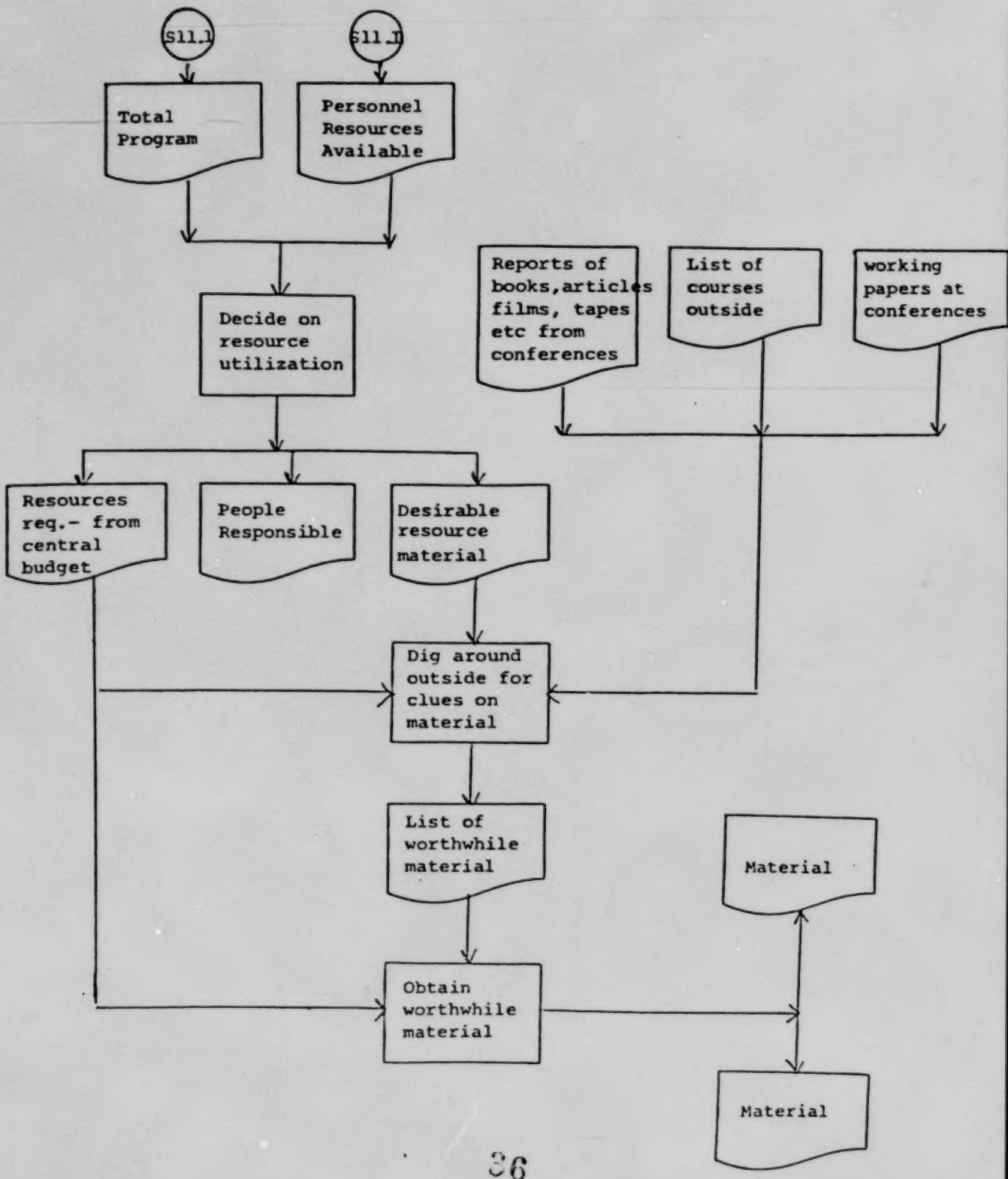


Figure 9. Dufferin Board - Activity 8.4.1

D2,3,7/S13.1 DISTRIBUTION OF INFORMATION ON PROFESSIONAL DEVELOPMENT TO TEACHERS

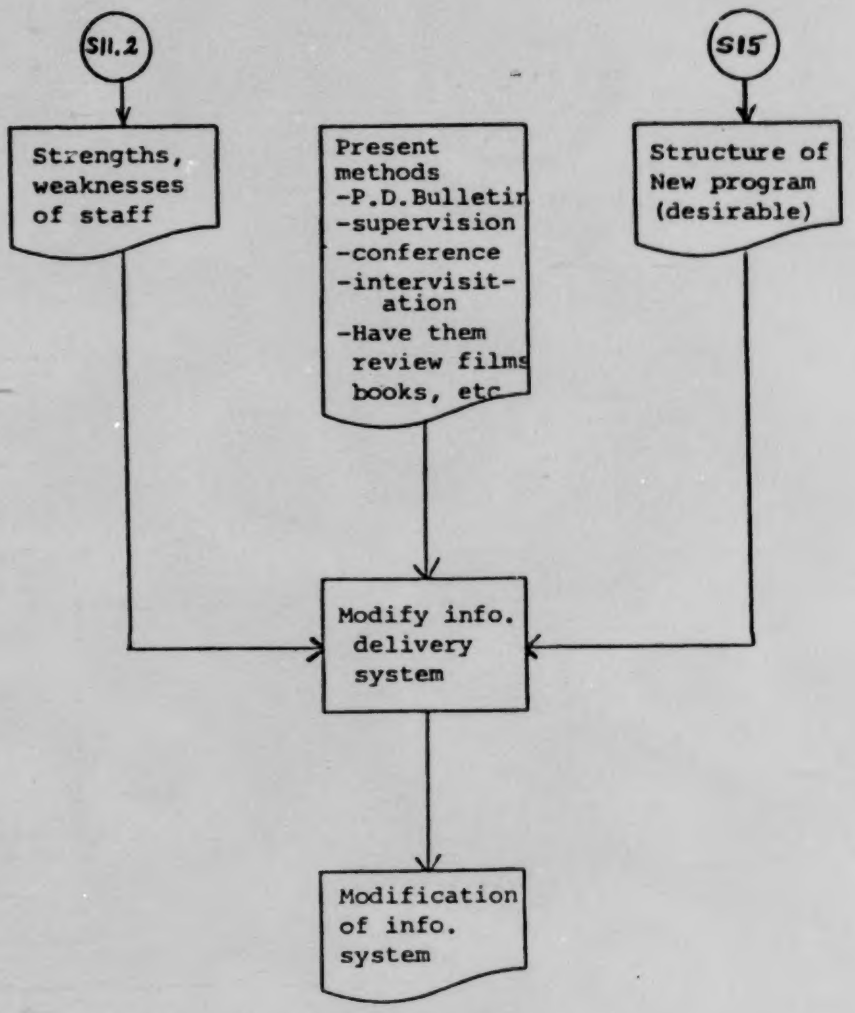


Figure 10. Dufferin Board - Activity 8.4.2

D2,3,7/S13.2 INFORMATION DISTRIBUTION ON INNOVATIVE TECHNIQUES TO TEACHERS

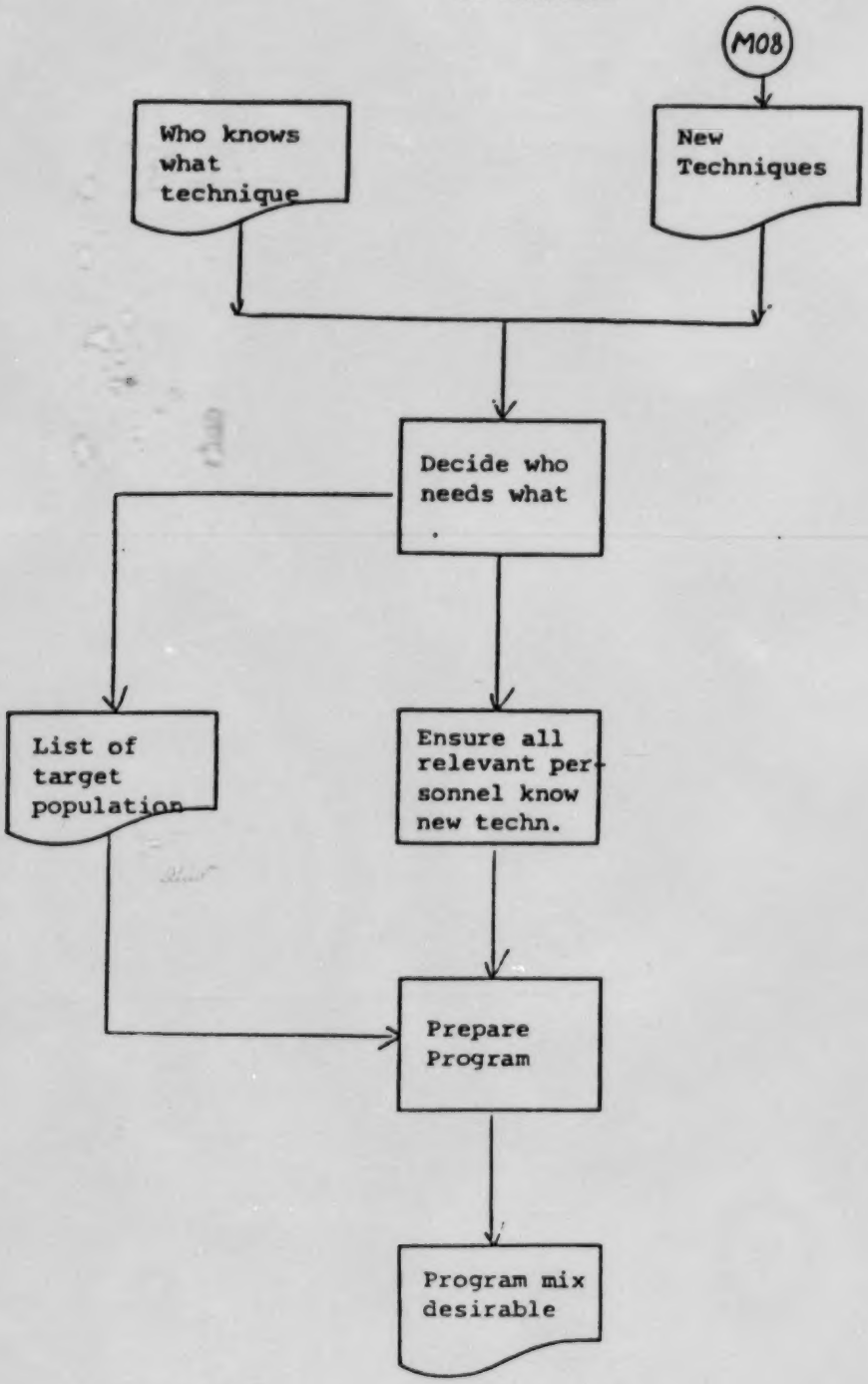


Figure 11. Dufferin Board - Activity 8.4.3

D2,3,11/S13.3 ENCOURAGE INNOVATION BY TEACHERS

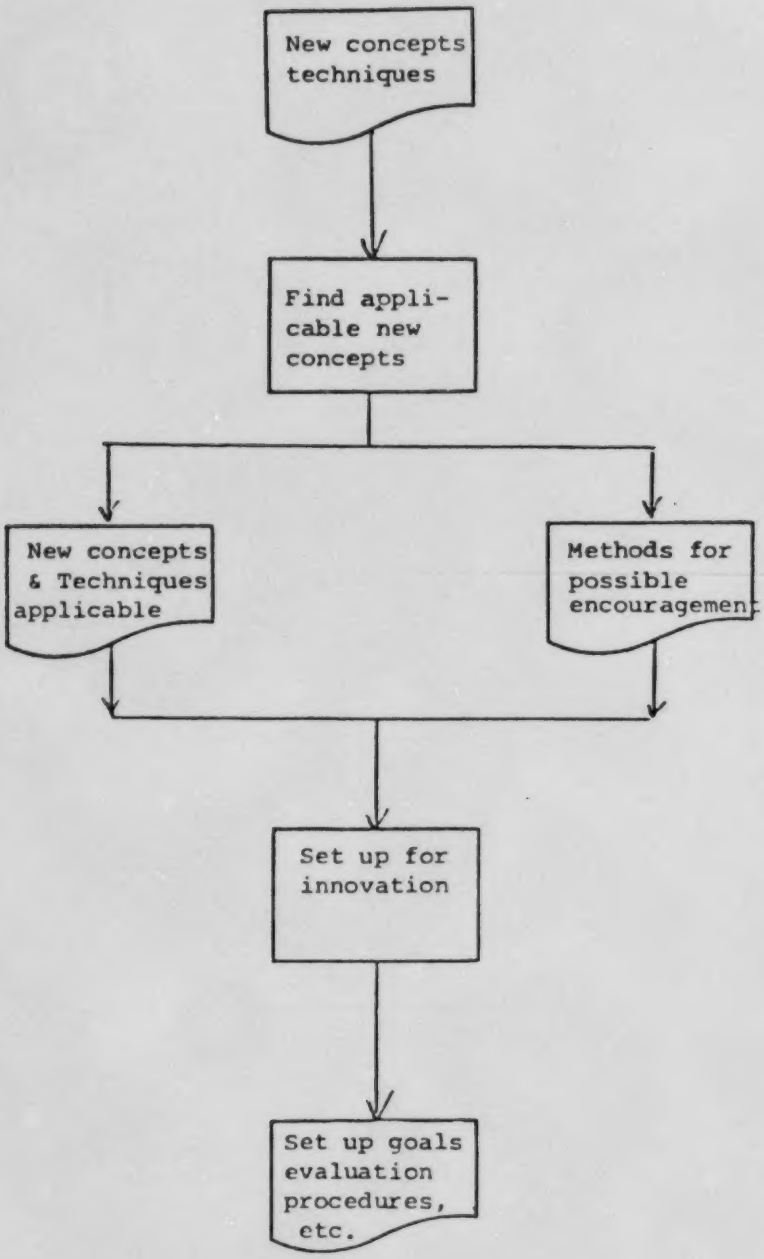
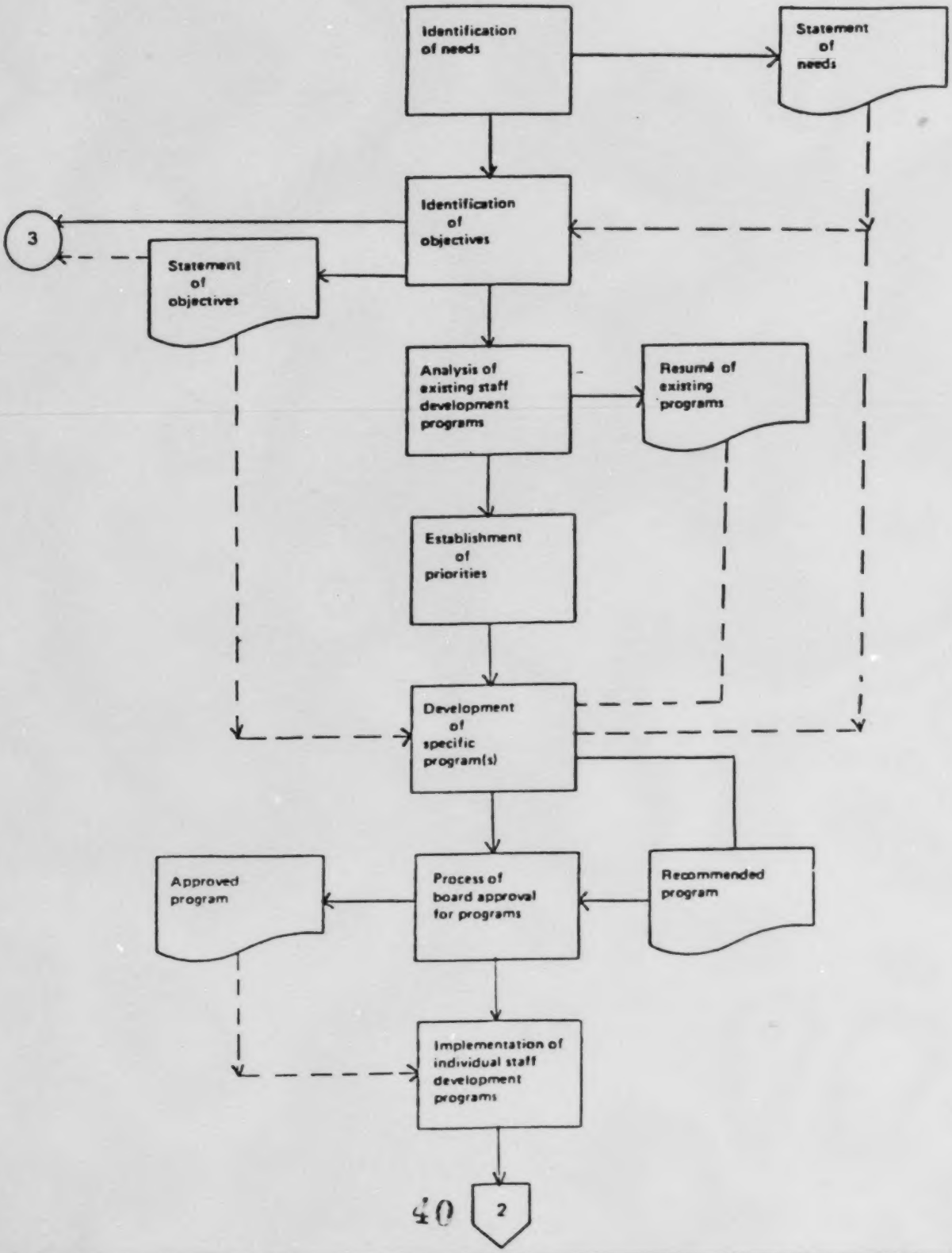

New concepts techniques
Find applicable new concepts
New concepts & Techniques applicable
Methods for possible encouragement
Set up for innovation
Set up goals evaluation procedures, etc.

Figure 12. Peel Board - Activity 8.1

8.1 STAFF DEVELOPMENT AND RELATIONS-Staff Development



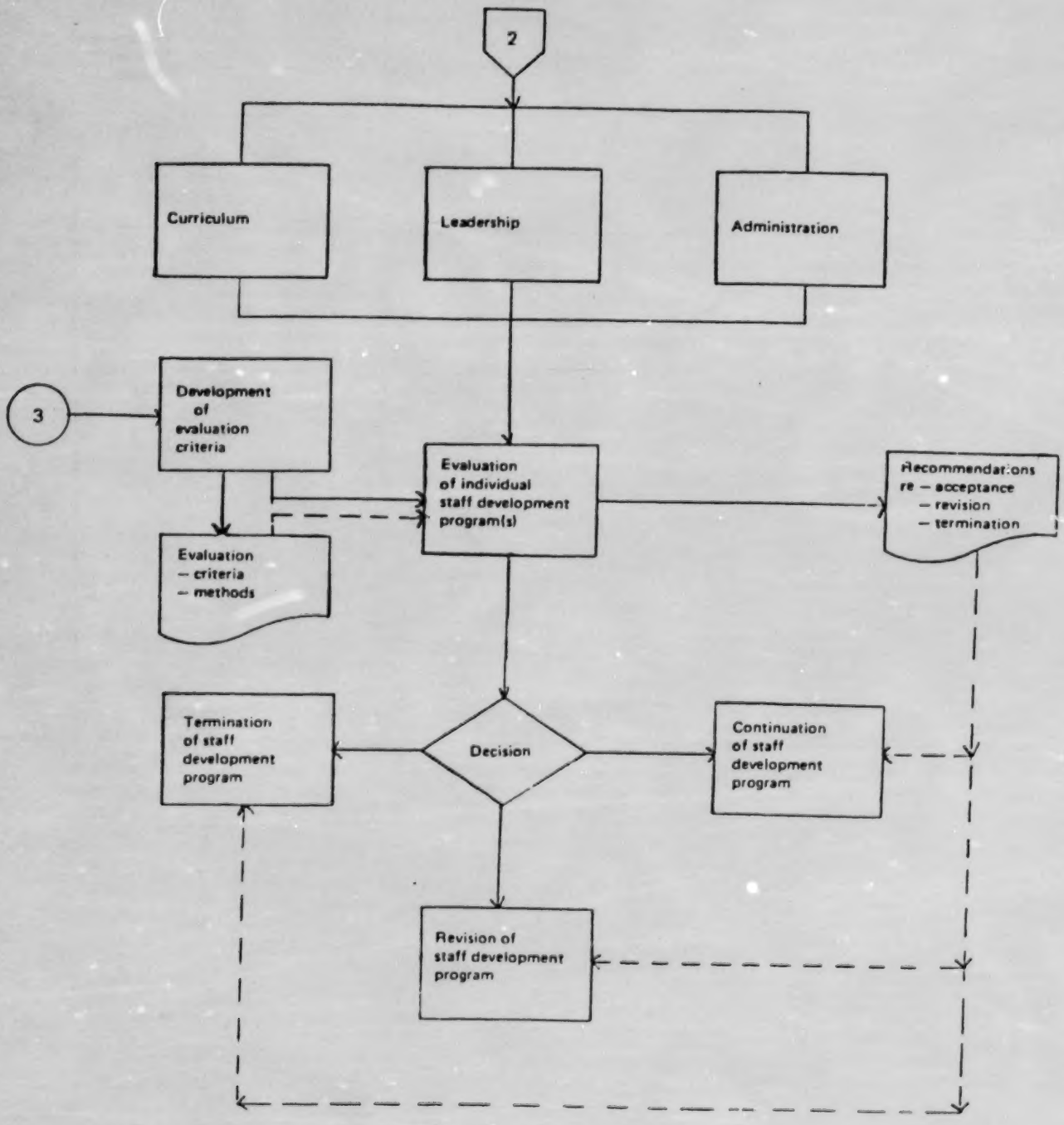

2
Curriculum
Leadership
Administration
3
Development of evaluation criteria
Evaluation of individual staff development program(s)
Recommendations re – acceptance – revision – termination
Evaluation – criteria – methods
Termination of staff development program
Decision
Continuation of staff development program
Revision of staff development program

Figure 13. Peel Board - Activity 8.1.1

8.1.1 STAFF DEVELOPMENT AND RELATIONS: DEVELOPMENT - Liaison with Teacher Training Institutions

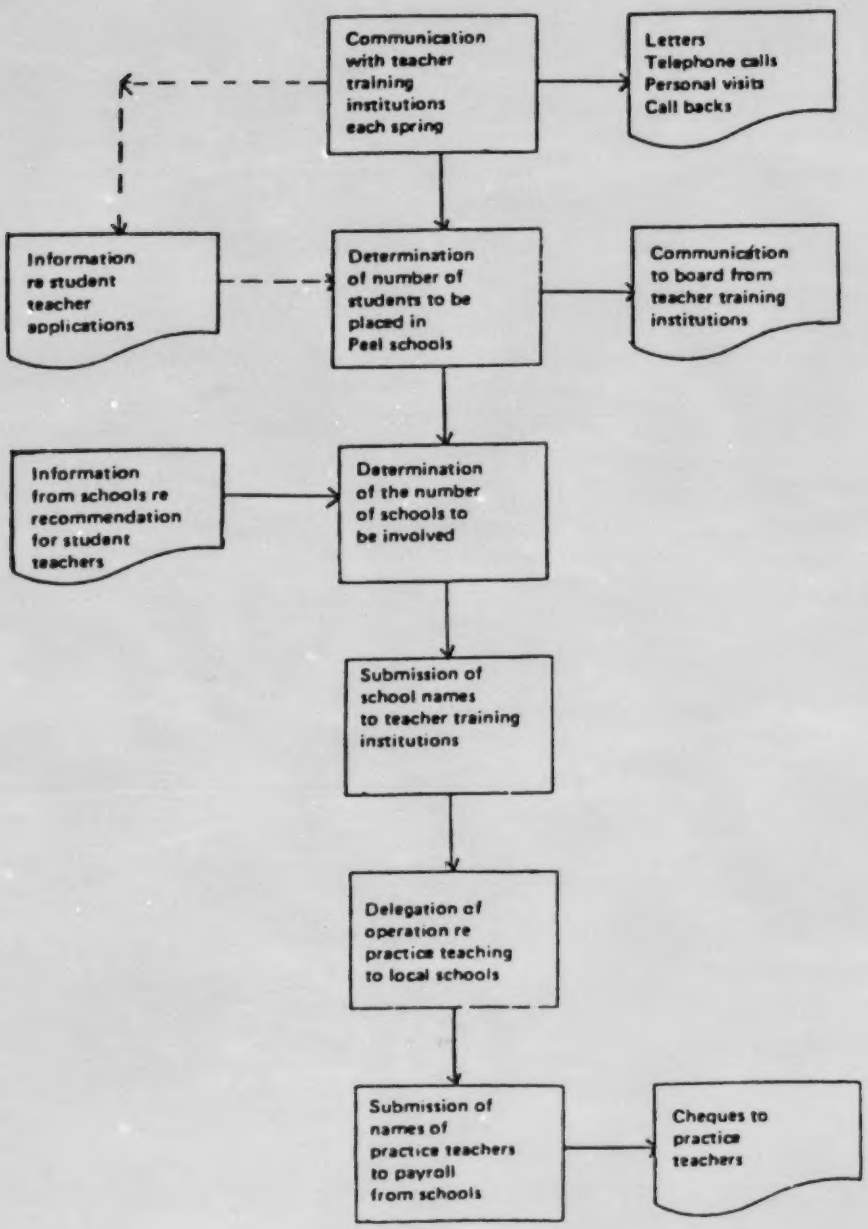
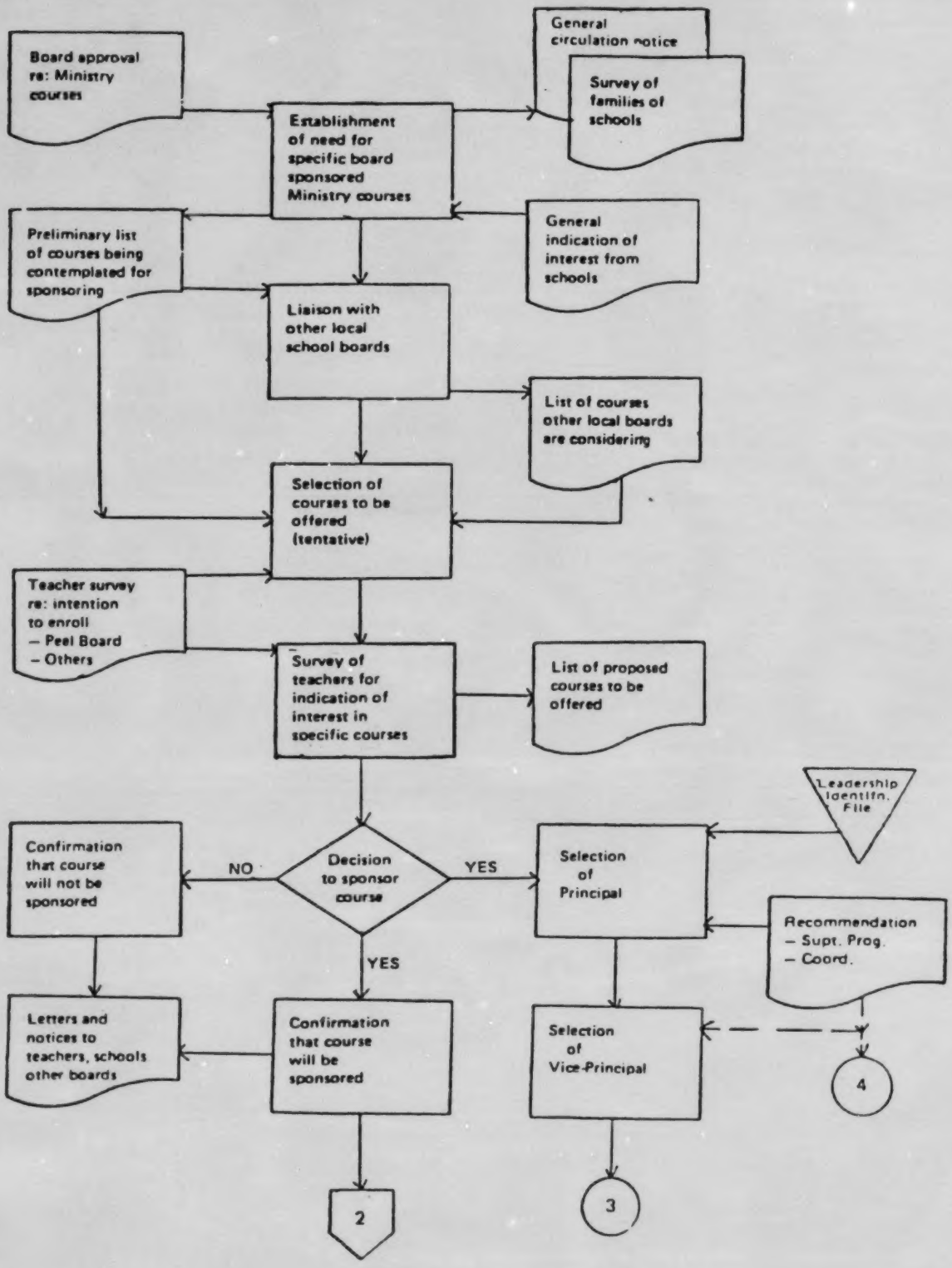

Communication with teacher training institutions each spring
Letters
Telephone calls
Personal visits
Call backs
Information re student teacher applications
Determination of number of students to be placed in Peel schools
Communication to board from teacher training institutions
Information from schools re recommendation for student teachers
Determination of the number of schools to be involved
Submission of school names to teacher training institutions
Delegation of operation re practice teaching to local schools
Submission of names of practice teachers to payroll from schools
Cheques to practice teachers

Figure 14. Peel Board - Activity 8.1.2

8.1.2 STAFF DEVELOPMENT: Board Sponsored Ministry Courses

1 or 2


Board approval re: Ministry courses
General circulation notice
Survey of families of schools
Establishment of need for specific board sponsored Ministry courses
General indication of interest from schools
Preliminary list of courses being contemplated for sponsoring
Liaison with other local school boards
List of courses other local boards are considering
Selection of courses to be offered (tentative)
Teacher survey re: intention to enroll
– Peel Board
– Others
Survey of teachers for indication of interest in specific courses
List of proposed courses to be offered
Leadership Identifn. File
Confirmation that course will not be sponsored
NO
Decision to sponsor course
YES
Selection of Principal
Recommendation
– Supt. Prog.
– Coord.
YES
Letters and notices to teachers, schools other boards
Confirmation that course will be sponsored
Selection of Vice-Principal
4
2
3

8.1.2 (cont'd)

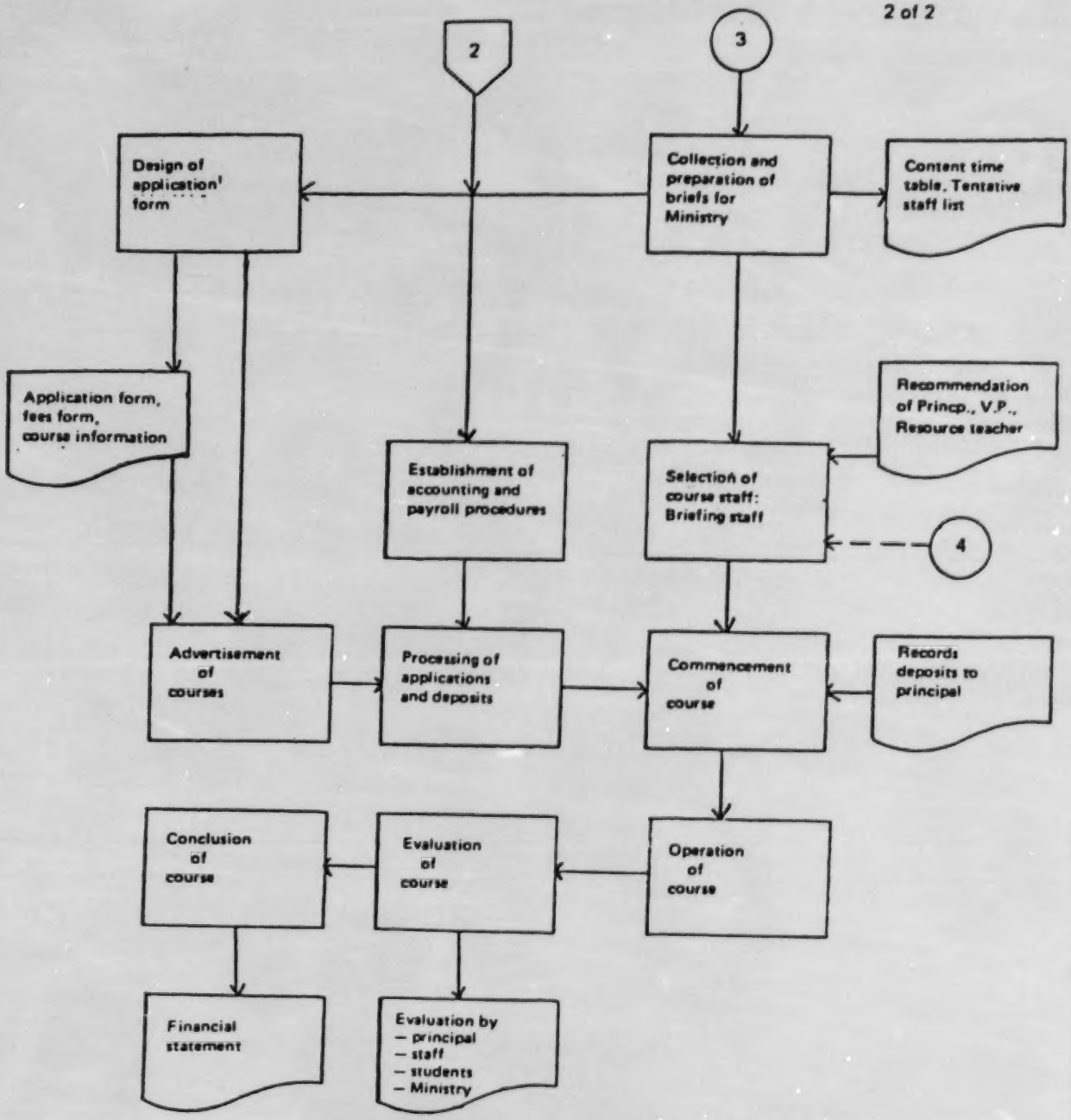

2
3
Design of application form
Collection and preparation of briefs for Ministry
Content time table, Tentative staff list
Application form, fees form, course information
Establishment of accounting and payroll procedures
Recommendation of Princp., V.P., Resource teacher
Selection of course staff: Briefing staff
4
Advertisement of courses
Processing of applications and deposits
Commencement of course
Records deposits to principal
Conclusion of course
Evaluation of course
Operation of course
Financial statement
Evaluation by
– principal
– staff
– students
– Ministry

Figure 15. Peel Board - Activity 8.1.3.1

8.1.3.1 STAFF DEVELOPMENT: Credit and Non Credit Courses-New Teachers

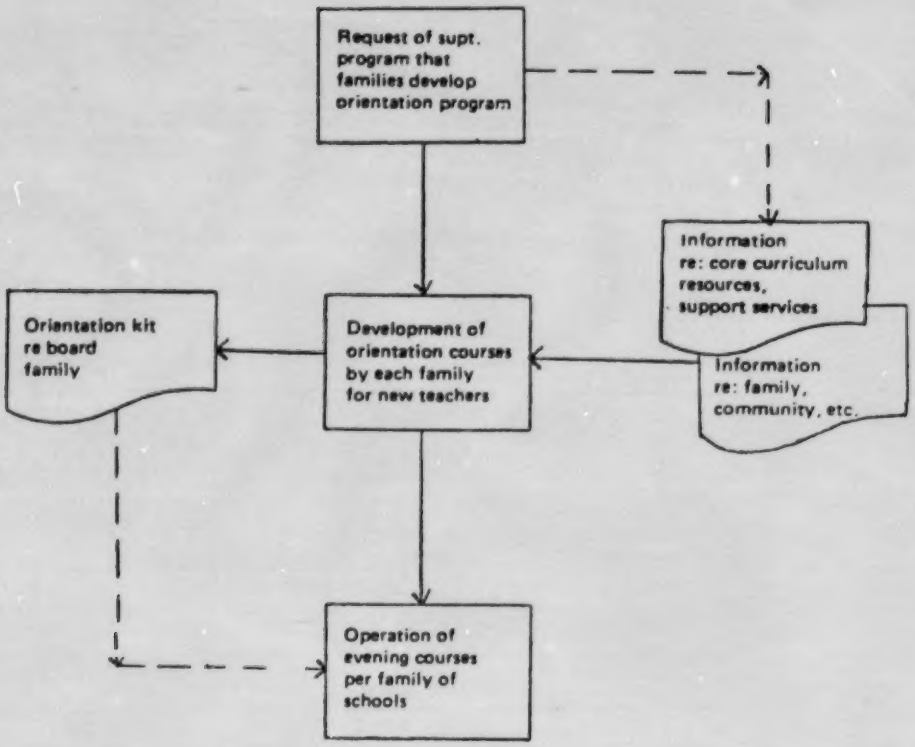

Request of supt. program that families develop orientation program
Information re: core curriculum resources, support services
Orientation kit re board family
Development of orientation courses by each family for new teachers
Information re: family, community, etc.
Operation of evening courses per family of schools

Figure 16. Peel Board - Activity 8.1.3.3

8.1.3.3 STAFF DEVELOPMENT: Credit and Non-credit Courses - Leadership Development

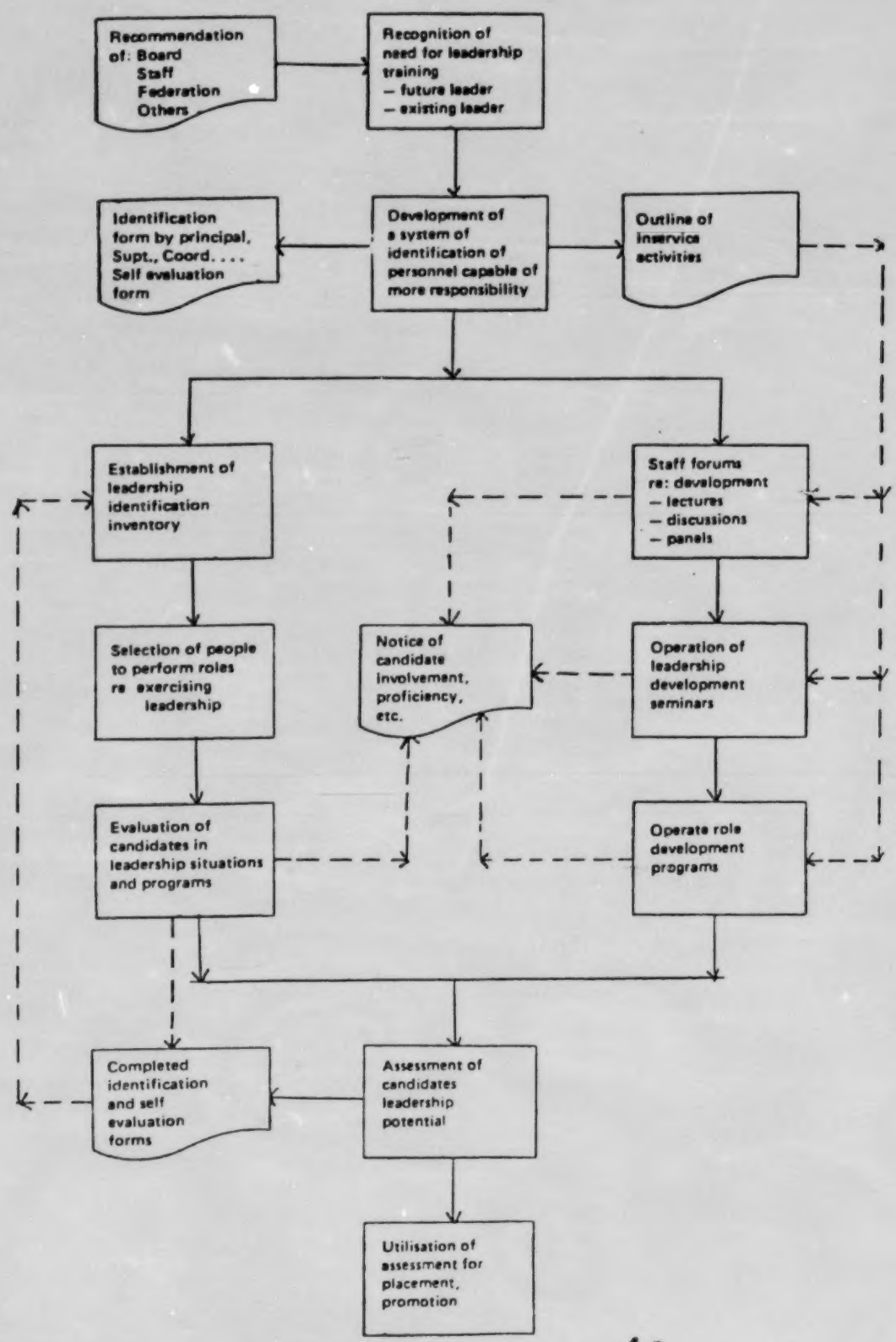

Recommendation of: Board Staff Federation Others
Recognition of need for leadership training – future leader – existing leader
Identification form by principal, Supt., Coord. . . . Self evaluation form
Development of a system of identification of personnel capable of more responsibility
Outline of inservice activities
Establishment of leadership identification inventory
Staff forums re: development – lectures – discussions – panels
Selection of people to perform roles re exercising leadership
Notice of candidate involvement, proficiency, etc.
Operation of leadership development seminars
Evaluation of candidates in leadership situations and programs
Operate role development programs
Completed identification and self evaluation forms
Assessment of candidates leadership potential
Utilisation of assessment for placement, promotion

Figure 17. Peel Board - Activity 8.1.3.4

8.1.3.4 STAFF DEVELOPMENT: Credit and Non-credit Courses - Substitute Teachers

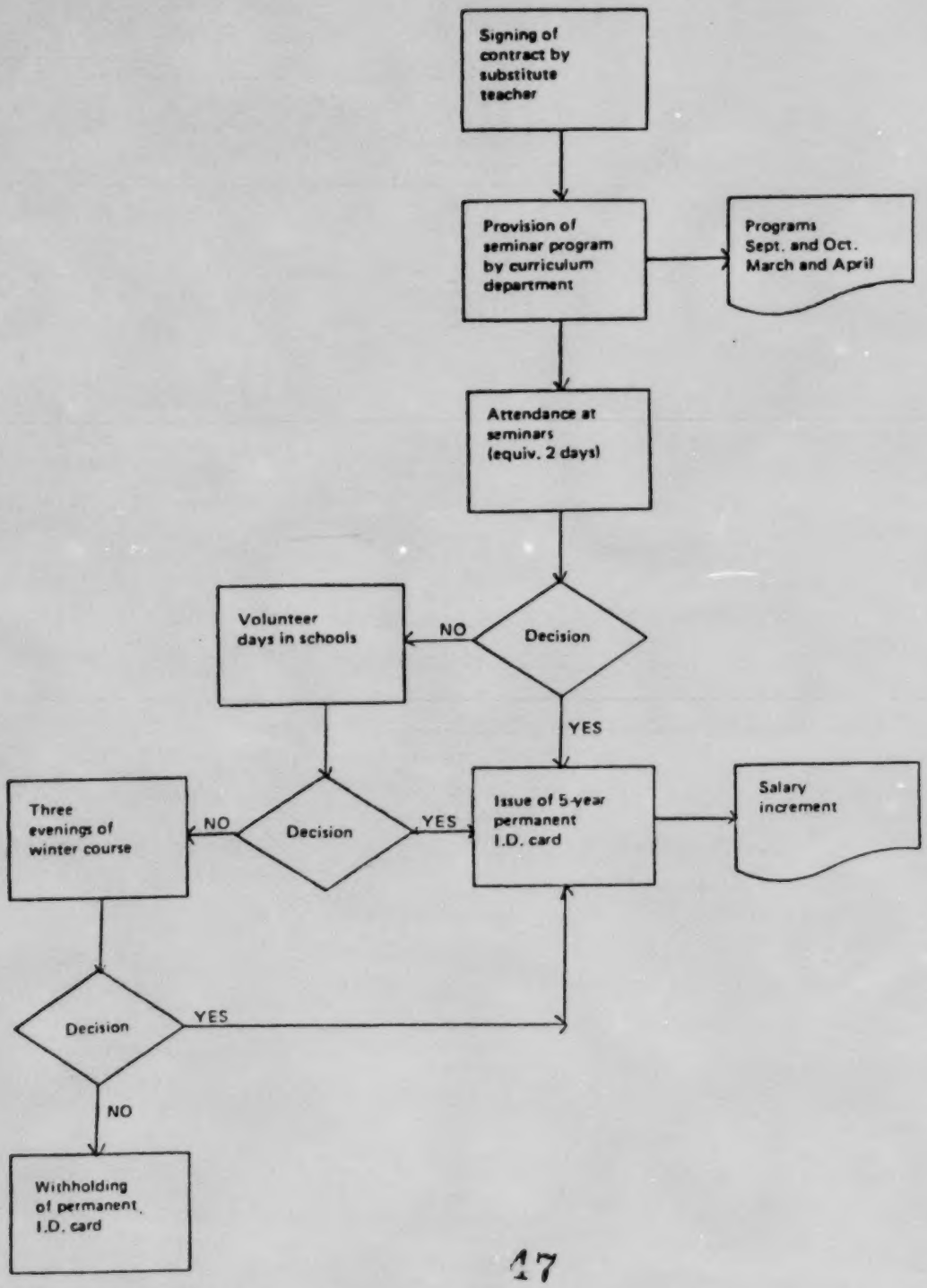


Figure 18. Peel Board - Activity 8.1.3.5

8.1.3.5 STAFF DEVELOPMENT: Credit and Non-credit Courses - Parent Volunteers

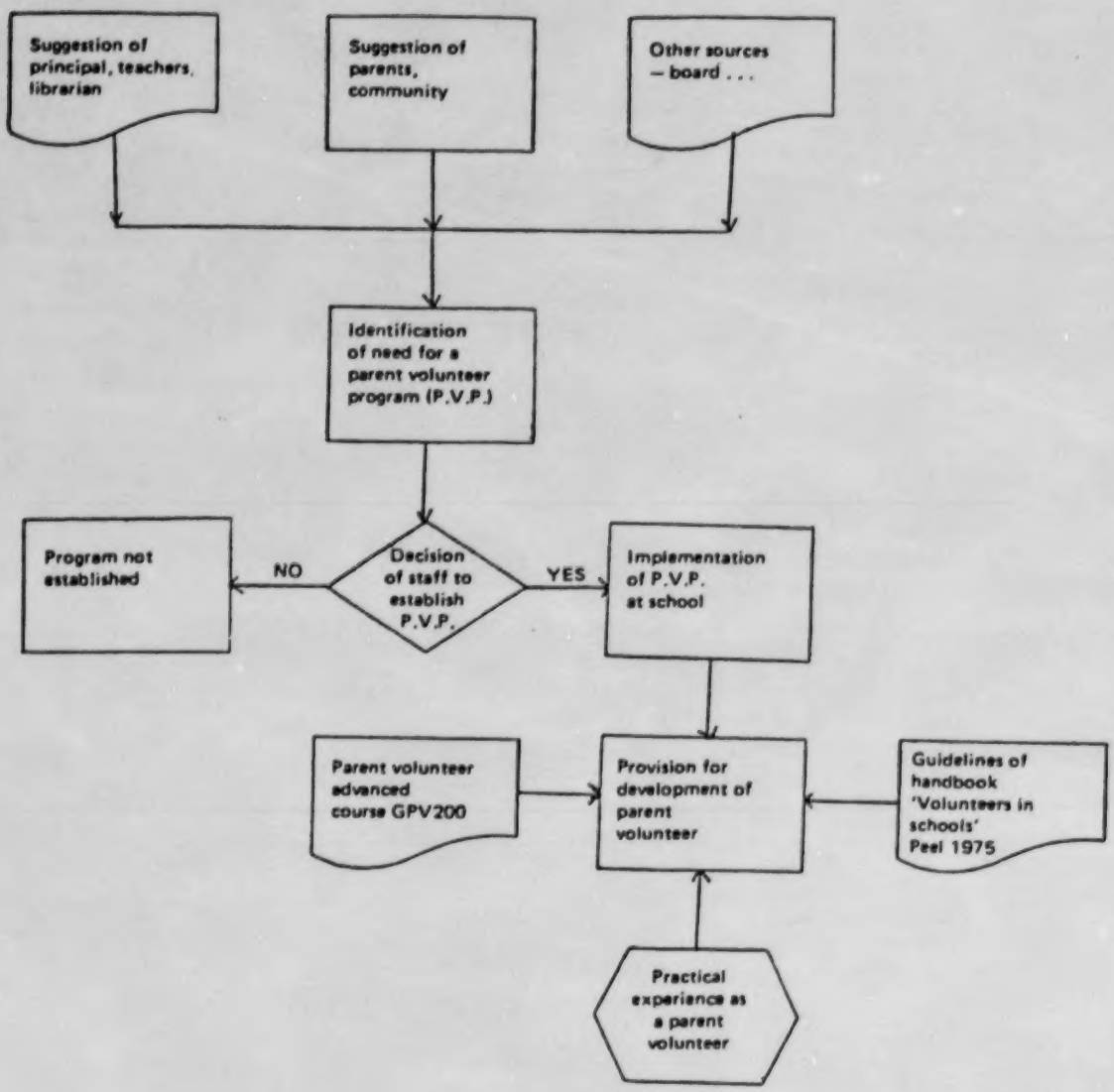

Suggestion of principal, teachers, librarian
Suggestion of parents, community
Other sources – board . . .
Identification of need for a parent volunteer program (P.V.P.)
Program not established
NO
Decision of staff to establish P.V.P.
YES
Implementation of P.V.P. at school
Parent volunteer advanced course GPV200
Provision for development of parent volunteer
Guidelines of handbook 'Volunteers in schools' Peel 1975
Practical experience as a parent volunteer

Figure 19. Peel Board - Activity 8.1.9

8.1.9 STAFF DEVELOPMENT: Professional Activity Days

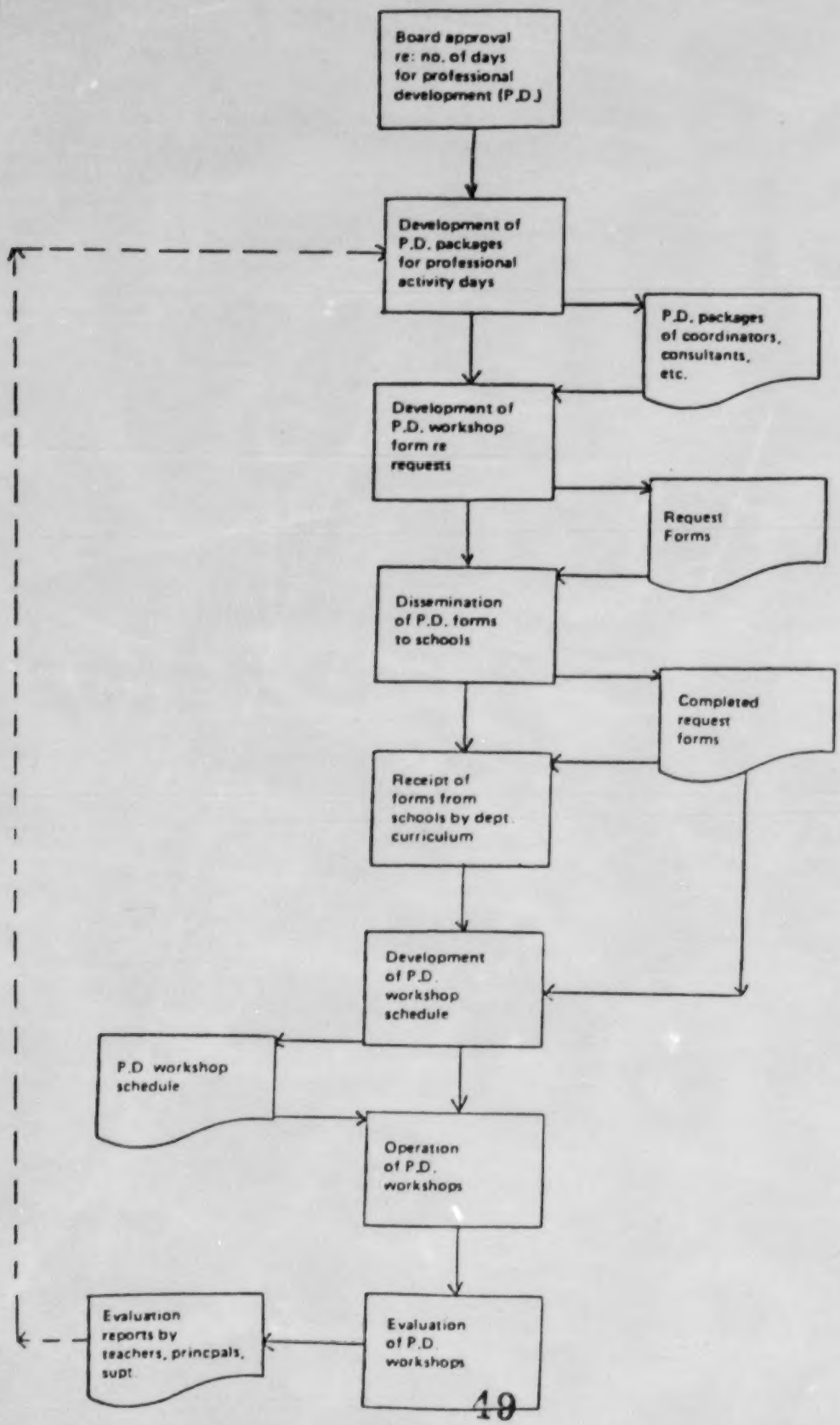

Board approval re: no. of days for professional development (P.D.)
Development of P.D. packages for professional activity days
P.D. packages of coordinators, consultants, etc.
Development of P.D. workshop form re requests
Request Forms
Dissemination of P.D. forms to schools
Completed request forms
Receipt of forms from schools by dept. curriculum
Development of P.D. workshop schedule
P.D. workshop schedule
Operation of P.D. workshops
Evaluation of P.D. workshops
Evaluation reports by teachers, principals, supt.

Figure 20. Dufferin Board - Activity 9.1.1

IYM 9 ASSESSMENT OF PRESENT PROGRAM

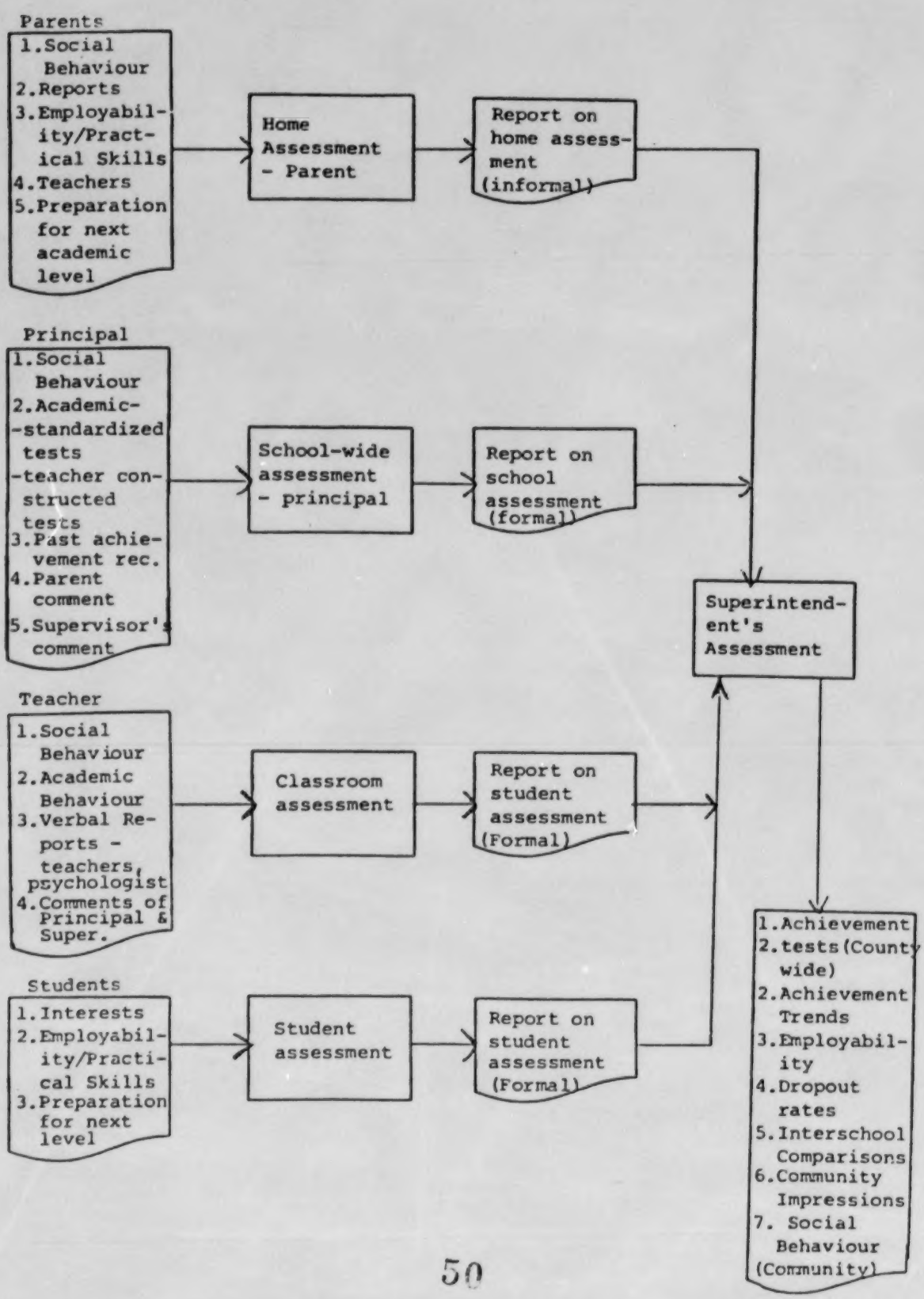


Figure 21. Dufferin Board - Activity 9.1.2

ITM 10 REVIEW OF PRESENT CURRICULUM IN PRINT

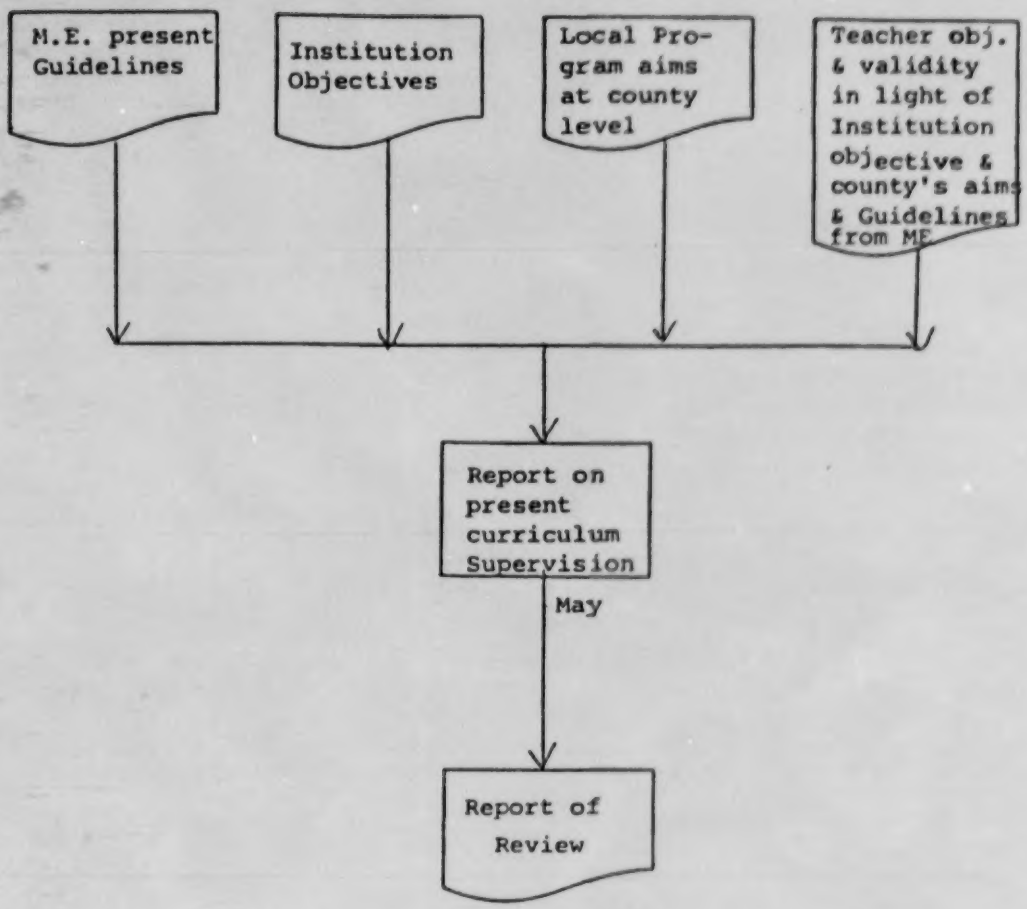

M.E. present Guidelines
Institution Objectives
Local Program aims at county level
Teacher obj. & validity in light of Institution objective & county's aims & Guidelines from ME
Report on present curriculum Supervision
May
Report of Review

Figure 22. Dufferin Board - Activity 9.1.3

ITM 11 NEW CURRICULUM NEEDS

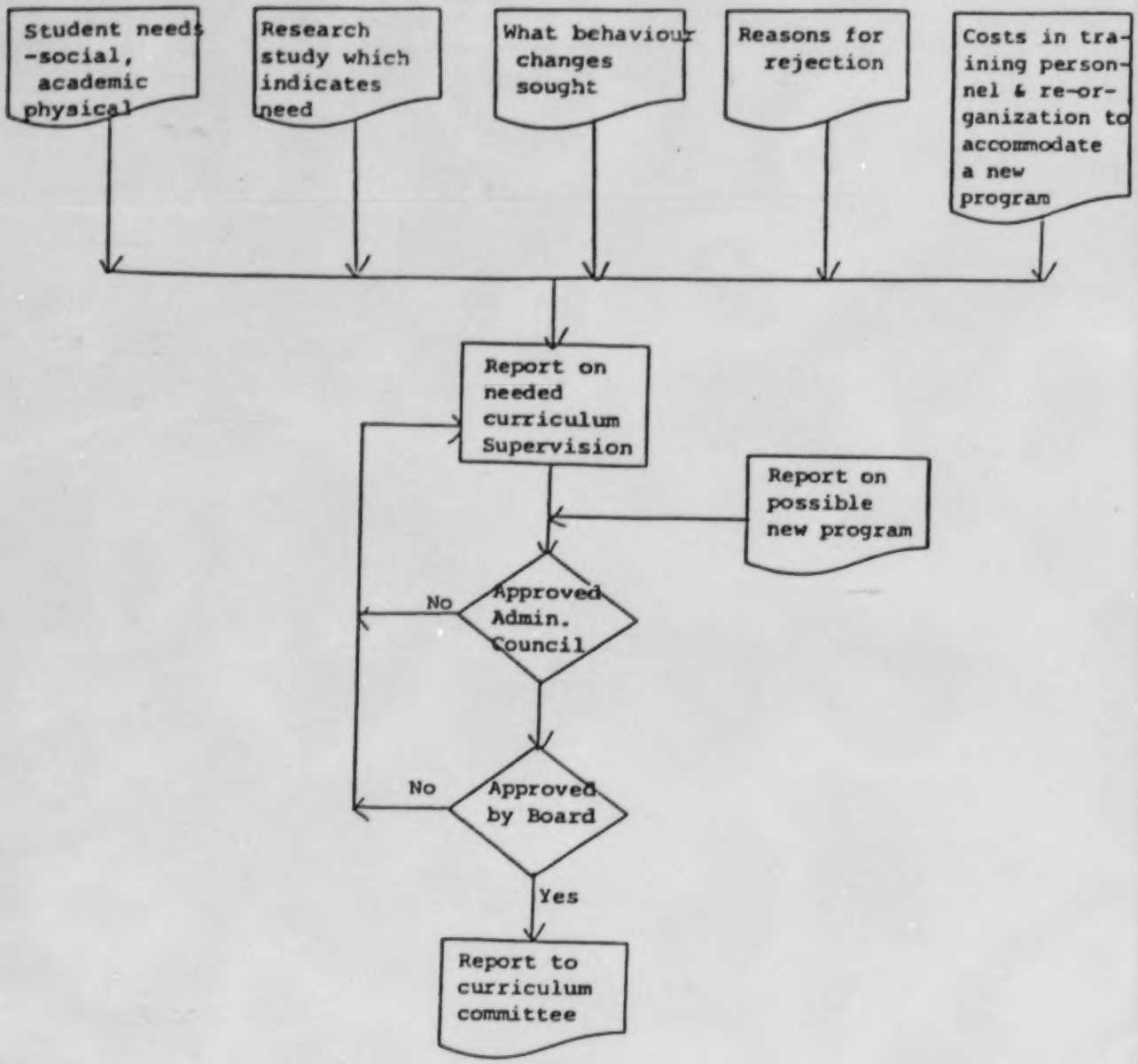


Figure 23. Dufferin Board - Activity 9.1.4

ITM 12 M.E. GUIDELINES

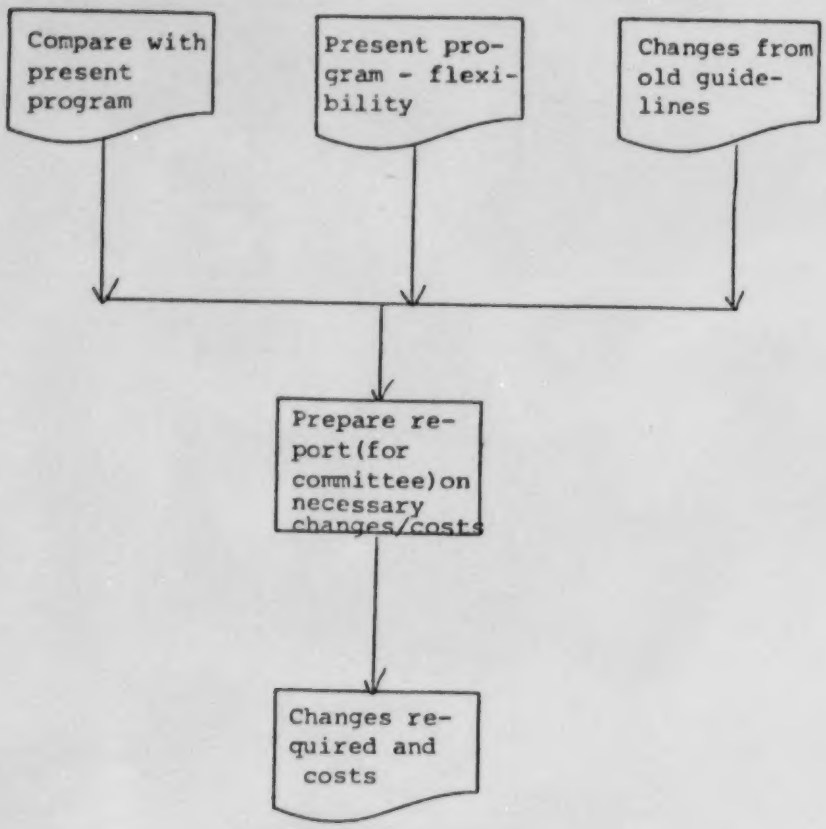

Compare with present program
Present program - flexibility
Changes from old guidelines
Prepare report(for committee)on necessary changes/costs
Changes required and costs

Figure 24. Dufferin Board - Activity 9.1.5

ITM 13 PRIORITY OF NEEDS

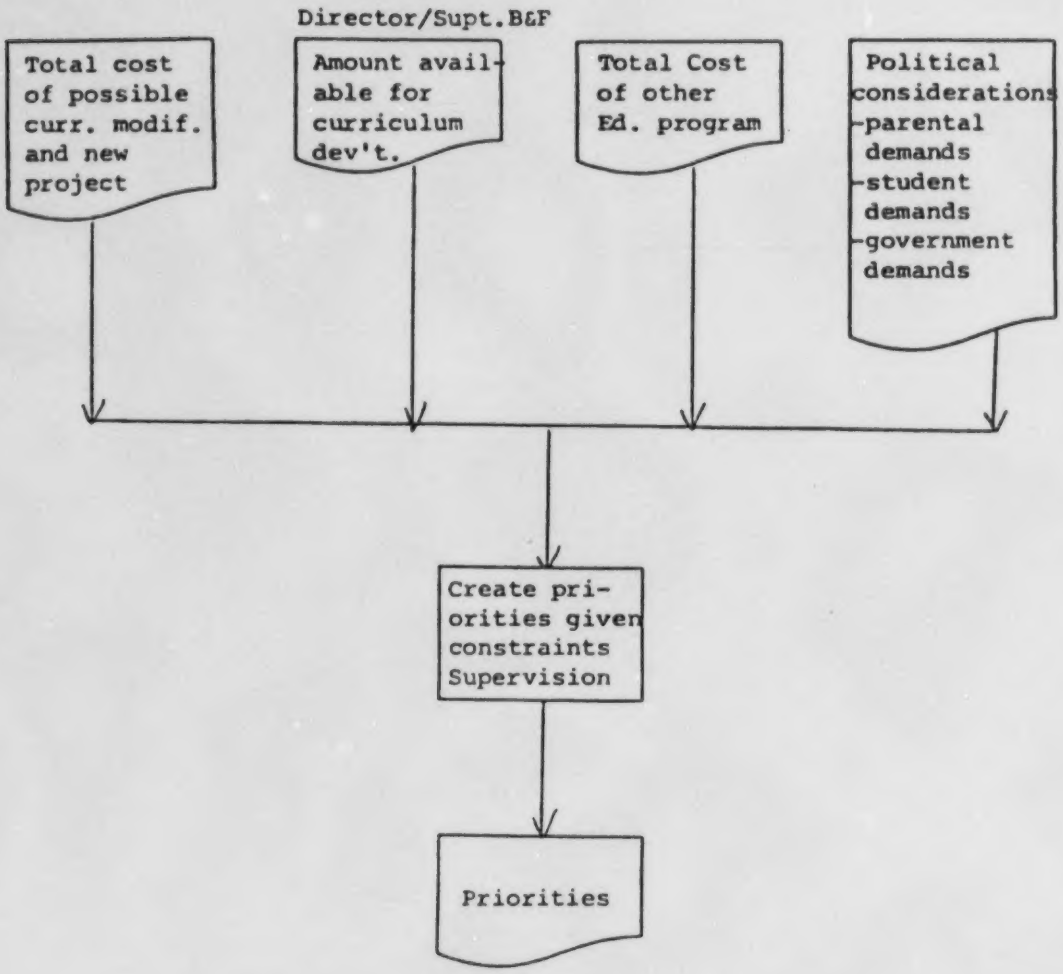


Figure 25. Dufferin Board - Activity 9.1

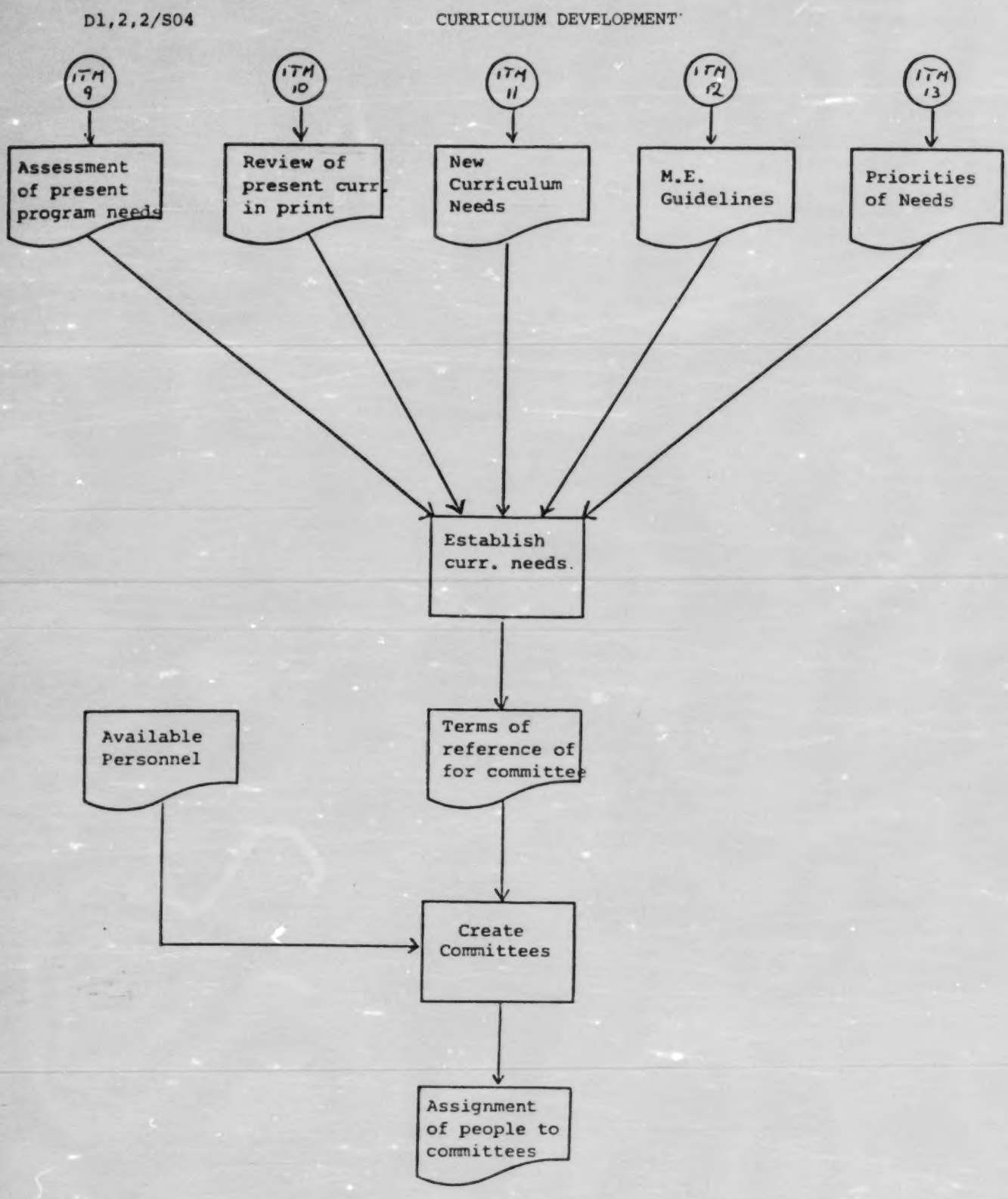


Figure 26. Dufferin Board - Activity 9.2

D1,2,6/S16 ASSESSMENT OF ACADEMIC PROGRAM

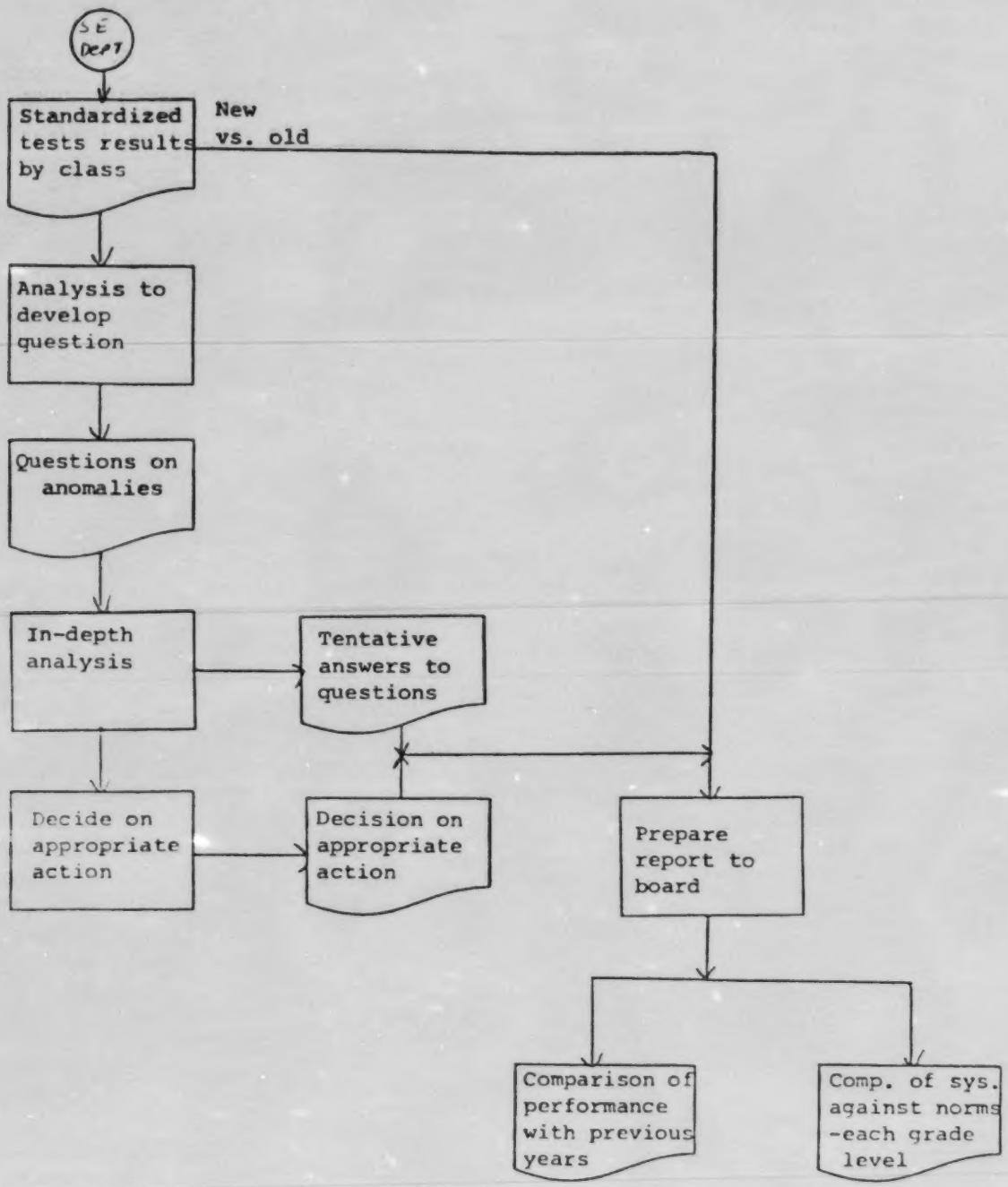
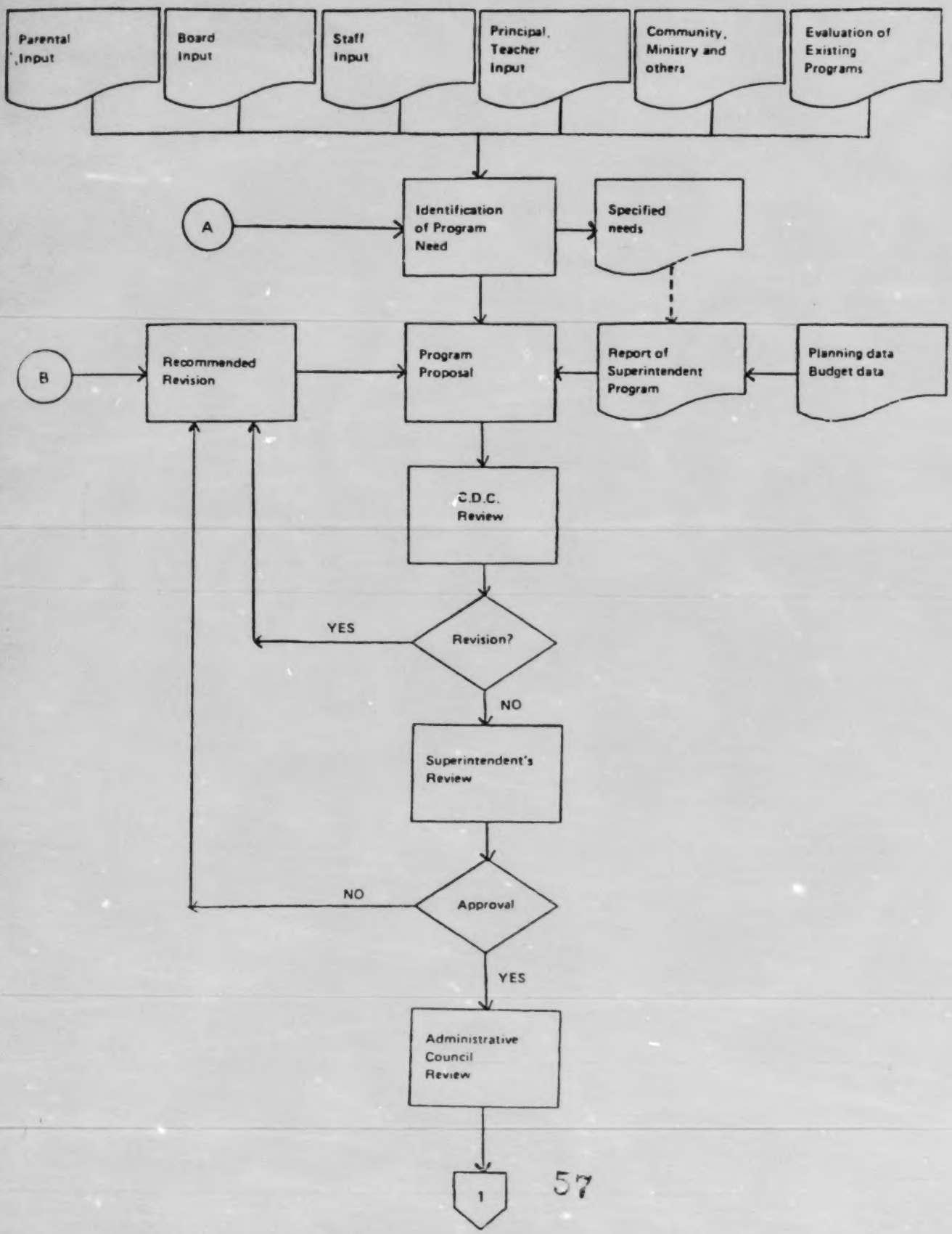
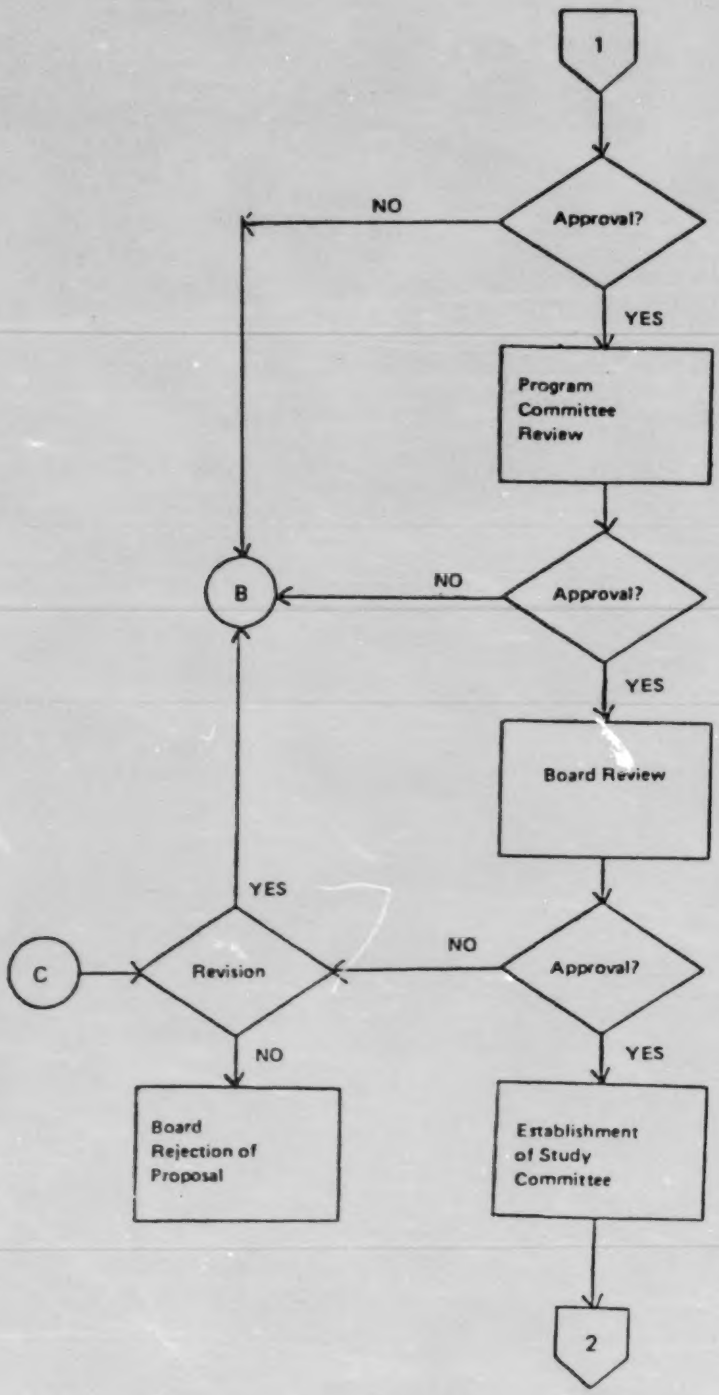
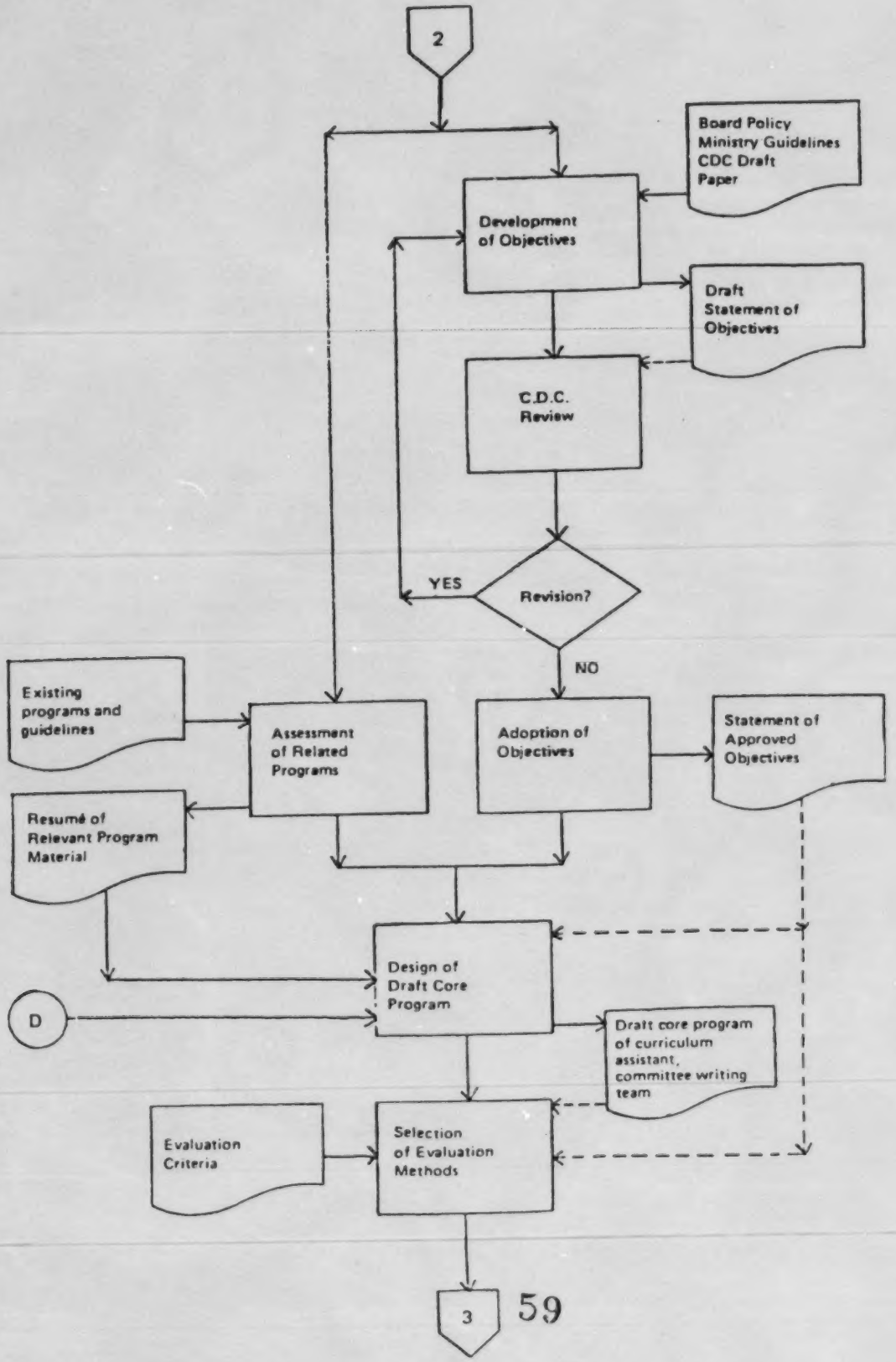

SE DEPT
Standardized tests results by class
New vs. old
Analysis to develop question
Questions on anomalies
In-depth analysis
Tentative answers to questions
Decide on appropriate action
Decision on appropriate action
Prepare report to board
Comparison of performance with previous years
Comp. of sys. against norms -each grade level

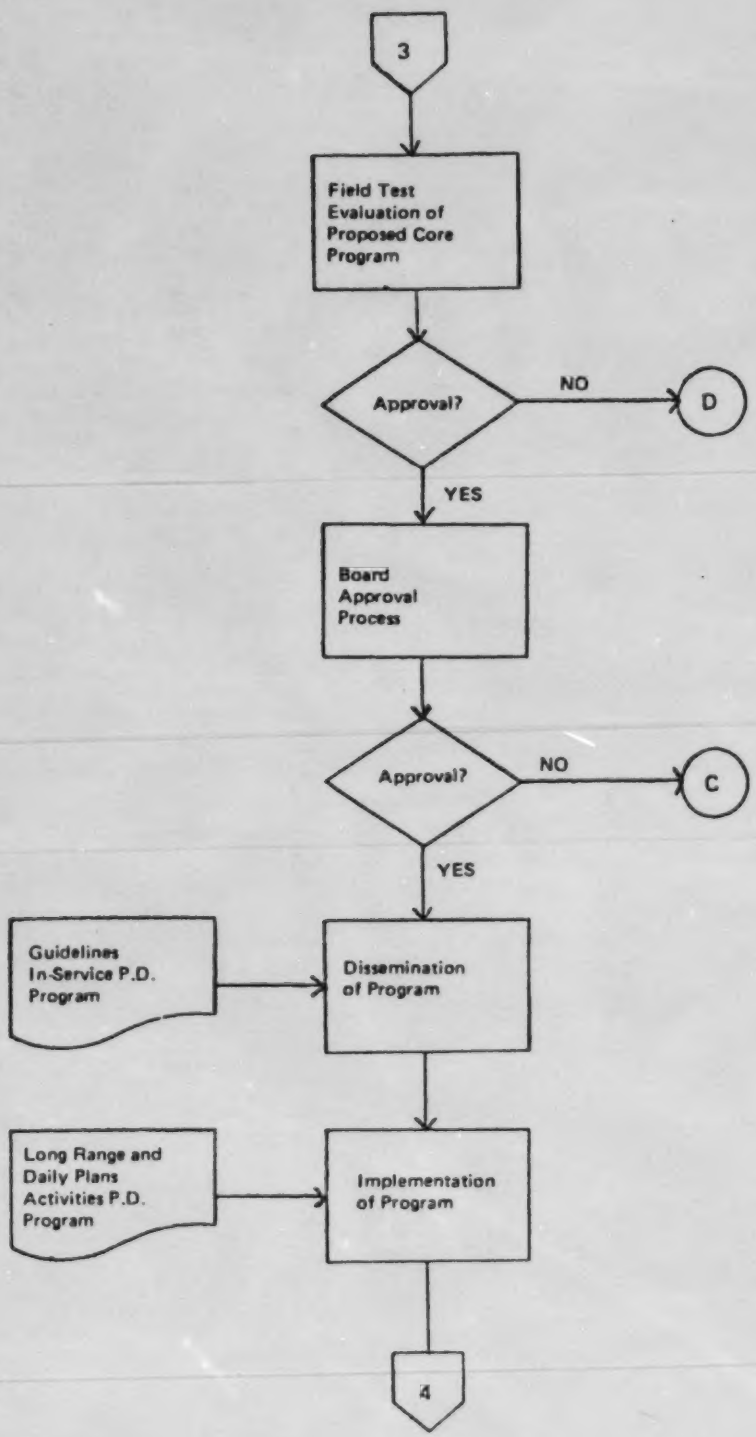
Figure 27. Peel Board - Activity 9.0

9.0 SCHOOL CURRICULUM (PROGRAM)




1
Approval?
NO
YES
Program Committee Review
B
NO
Approval?
YES
Board Review
YES
C
Revision
NO
Approval?
NO
YES
Board Rejection of Proposal
Establishment of Study Committee
2


2
Board Policy
Ministry Guidelines
CDC Draft
Paper
Development
of Objectives
Draft
Statement of
Objectives
C.D.C.
Review
YES
Revision?
NO
Existing
programs and
guidelines
Assessment
of Related
Programs
Adoption of
Objectives
Statement of
Approved
Objectives
Resumé of
Relevant Program
Material
Design of
Draft Core
Program
D
Draft core program
of curriculum
assistant,
committee writing
team
Evaluation
Criteria
Selection
of Evaluation
Methods
3


3
Field Test Evaluation of Proposed Core Program
Approval?
NO
D
YES
Board Approval Process
Approval?
NO
C
YES
Guidelines In-Service P.D. Program
Dissemination of Program
Long Range and Daily Plans Activities P.D. Program
Implementation of Program
4

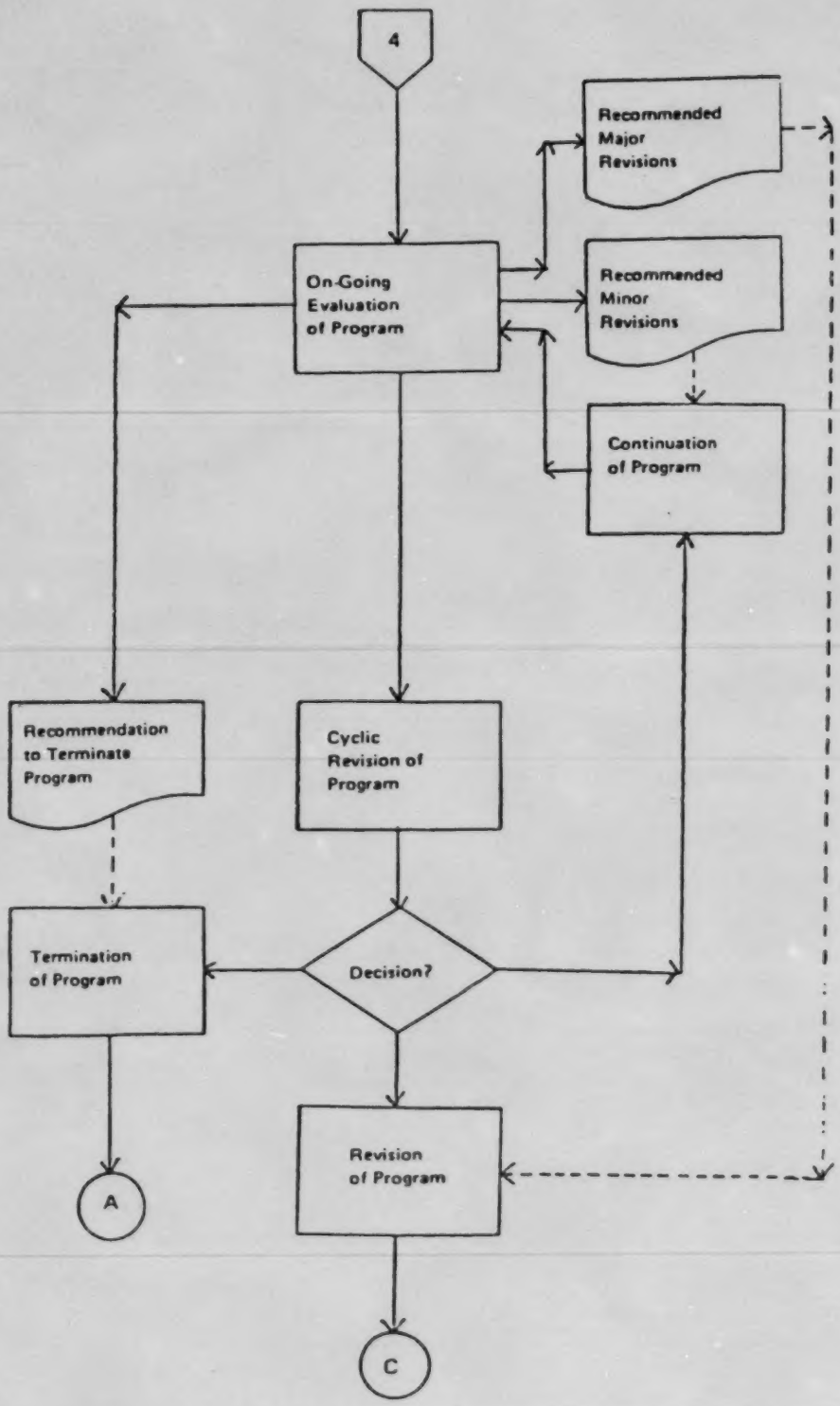

4
Recommended Major Revisions
On-Going Evaluation of Program
Recommended Minor Revisions
Continuation of Program
Recommendation to Terminate Program
Cyclic Revision of Program
Termination of Program
Decision?
Revision of Program
A
C

Figure 28. Peel Board - Activity 9.1.1

9.1.1 SCHOOL CURRICULUM (PROGRAM): Program Development and Evaluation - Development of Objectives

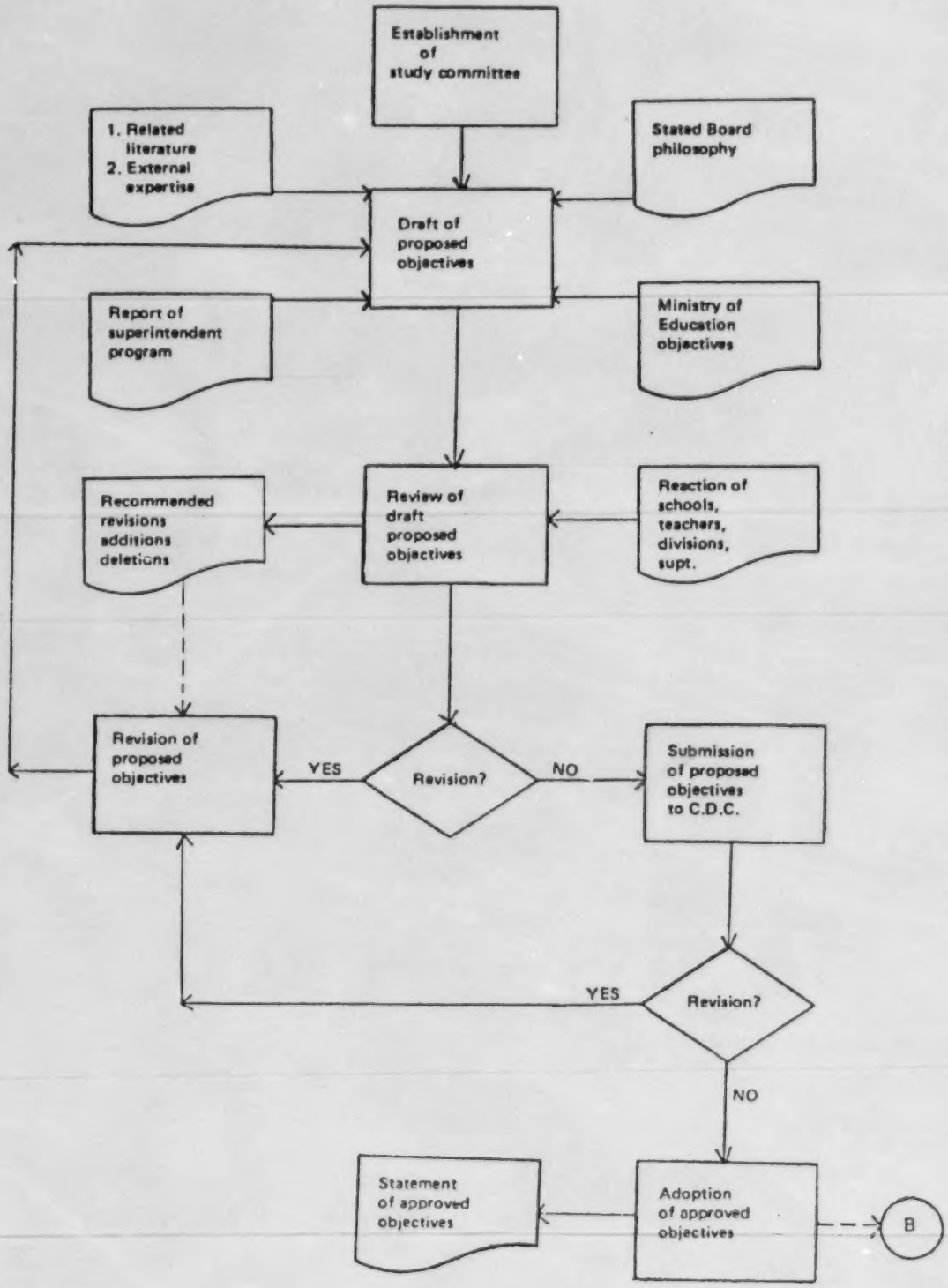


Figure 29. Peel Board - Activity 9.1.2

9.1.2 SCHOOL CURRICULUM (PROGRAM): Program Development and Evaluation Design of Draft Core Program

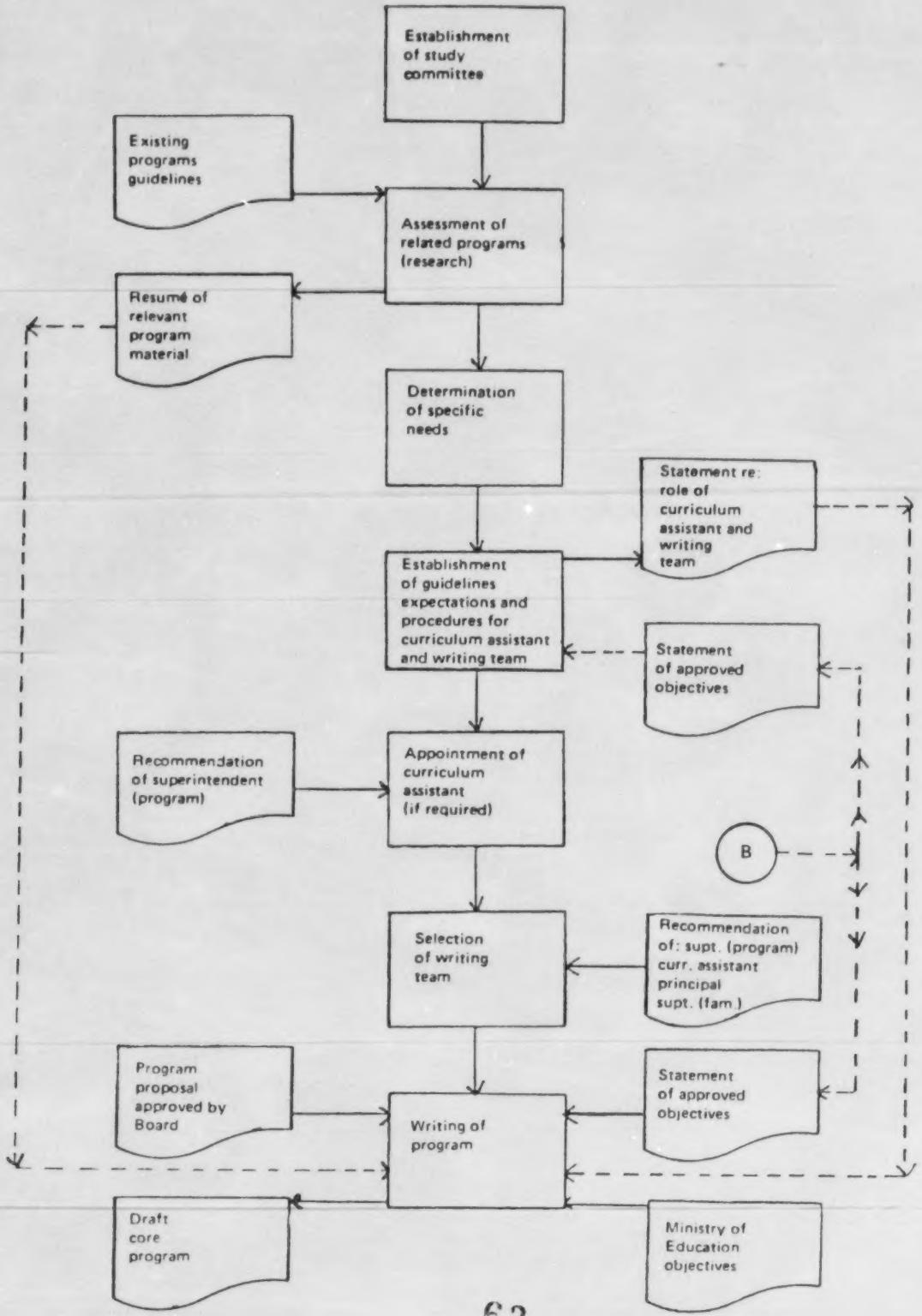
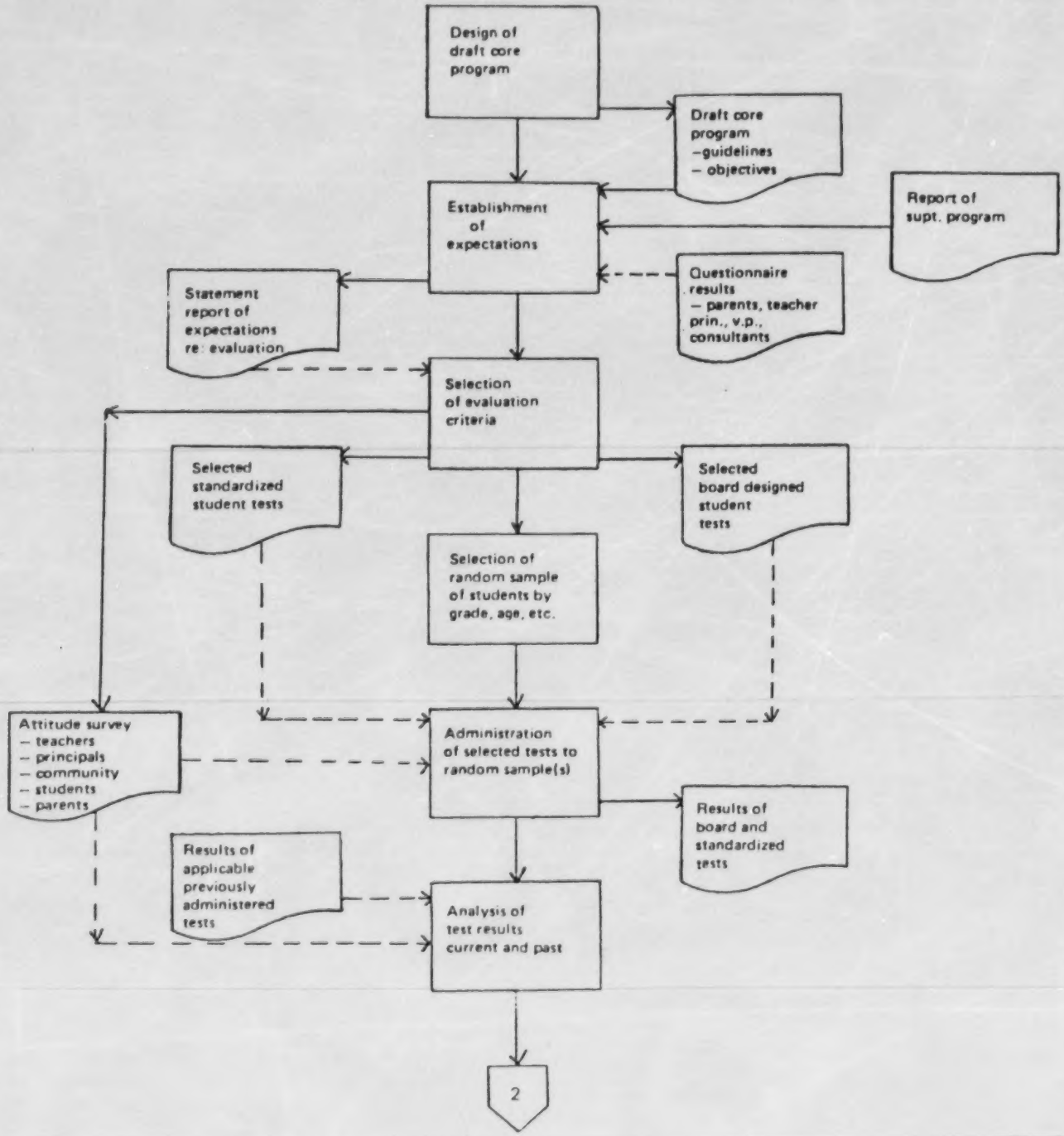
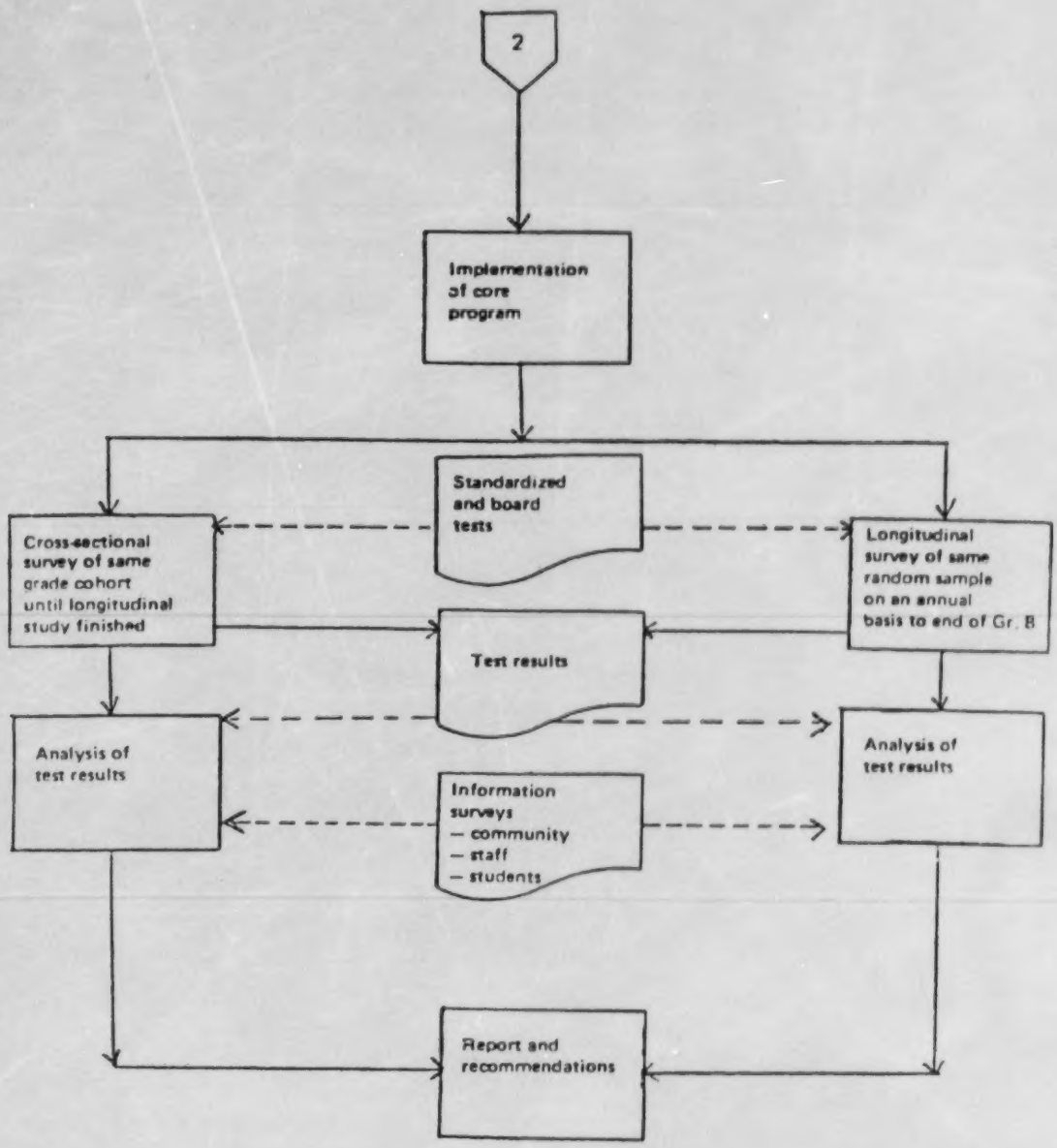

Establishment of study committee
Existing programs guidelines
Assessment of related programs (research)
Resumé of relevant program material
Determination of specific needs
Statement re: role of curriculum assistant and writing team
Establishment of guidelines expectations and procedures for curriculum assistant and writing team
Statement of approved objectives
Recommendation of superintendent (program)
Appointment of curriculum assistant (if required)
B
Selection of writing team
Recommendation of: supt. (program) curr. assistant principal supt. (fam.)
Program proposal approved by Board
Statement of approved objectives
Writing of program
Draft core program
Ministry of Education objectives

Figure 30. Peel Board - Activity 9.1.3

9.1.3 SCHOOL CURRICULUM (PROGRAM): Program Development and Ebaluation - Evaluation of Program 1 of 2


Design of draft core program
Draft core program –guidelines – objectives
Establishment of expectations
Report of supt. program
Questionnaire results – parents, teacher prin., v.p., consultants
Statement report of expectations re: evaluation
Selection of evaluation criteria
Selected standardized student tests
Selected board designed student tests
Selection of random sample of students by grade, age, etc.
Attitude survey – teachers – principals – community – students – parents
Administration of selected tests to random sample(s)
Results of board and standardized tests
Results of applicable previously administered tests
Analysis of test results current and past
2

9.1.3 (cont'd)


2
Implementation of core program
Standardized and board tests
Cross-sectional survey of same grade cohort until longitudinal study finished
Longitudinal survey of same random sample on an annual basis to end of Gr. 8
Test results
Analysis of test results
Analysis of test results
Information surveys
– community
– staff
– students
Report and recommendations

DELPHI STUDIES ON CURRICULUM SERVICES AND QUALITY EDUCATION

CODE/CURRICULUM

SUSAN PADRO

Department of Educational Planning

The Ontario Institute for Studies in Education

March 1978

Report to the Commission on Declining Enrolments: Part II

Delphi Studies on Curriculum Services
and Quality Education

CODE/Curriculum

Susan Padro

A. Introduction

As part of the Commission on Declining Enrolment's Curriculum Task Force, this study has been designed to provide information on the views of educators in school boards relating to (a) curriculum services and (b) to conditions under which "quality" programs can be maintained. The methodology used for providing this information is the Delphi technique.

The Delphi technique is a means of systematic solicitation and collation of expert opinion. It is especially useful when subjective, judgemental factors are being assessed, although it was originally used for forecasting "hard" data. The technique attempts to get a panel of experts to reach "consensus" without face-to-face confrontation. This has the advantages of (a) efficiency, (b) avoidance of domination of the group by a vociferous minority and (c) avoidance of a "bandwagon" effect. It incorporates the features of anonymity, controlled feedback and statistical group response. The process usually consists of about three response rounds, in the form of questionnaires.

Each round is derived from the previous round, with feedback to respondents of the median and interquartile group response. Respondents are asked whether they wish to change their initial response, given the inputs about the group's behaviour, and can be requested to provide reasons for not shifting from an extreme position. The final round provides a definition of the group's "consensus."

Since we are dealing with statistical treatment of responses, the possibility exists that a spread of opinion will still occur at the end of the process. This can happen if there are a number of distinct "schools of thought" on the subject with "consensus" occuring within each such group. In any event, the Delphi results can provide useful information on group consensus with subjective variables which could not be derived by simple questionnaire analysis.

B. Delphi Study of Curriculum Services

Objectives and Rationale

The objective of this segment of the study is to define the essential curriculum services provided by the central administration of school boards and to assess them on the basis of two criteria: usefulness at the classroom level and importance to the board as a whole. The main perspective is that of the users of the services: teachers and principals.

The rationale for this approach was based on the expectation that, during a time of enrolment decline and possible contraction of boards, it is quite likely that the functions of relatively labor-intensive areas of board administration may be cut back. In an effort to maintain essential services, it would be helpful for a school board to be aware of the services which are deemed important to its users at the school level, and those which they consider essential for the general operations of the board. It is not unlikely that those areas found to be most important to the school level may be effectively handled at that level of operations, while those perceived to be important to the operations of the system as a whole could not be diffused in this manner.

Procedures

The study was conducted at two boards: Peel and Dufferin. Dufferin was representative of a small, mainly rural board, which is relatively stable (or slightly increasing) in school enrolments. The Peel Board is a very large board which has both urban and rural components. Although not declining in enrolments as a whole, one area of the board, South Peel, is currently experiencing rather severe problems of enrolment decline.

A panel of experts was selected at each board as follows:

Peel: N=10	Teachers	- 3 elementary from an area of sharp decline - 3 secondary from an area of sharp decline
	Principals	- 1 elementary from an area of sharp decline - 1 secondary from an area of sharp decline
	Administrators	- 1 Superintendent of Schools (Field) from an area of sharp decline - 1 Superintendent of Schools (Program) from the central board office
Dufferin: N=9	Teachers	- 3 elementary - 3 secondary
	Principals	- 1 elementary - 1 secondary
	Administrators	- 1 Assistant Superintendent (Academic)

These samples from the two boards are heavily composed of the recipients of the curriculum services provided by the board, that is, users at the school level. Nominal representation of curriculum administrators was included to allow for some broader perspective and inputs from the board's point of view. To allow for differences in the numbers and hierarchy of administrative staff at the two boards, the Dufferin Board had only one administrative representative (from the central office) while the Peel Board had two (one from central office and one from a field office).

Each board was treated independently in conducting the study. Consideration was given to combining the sample into a single panel, but the realities of school board decision-making which is based on a level of consensus within the board, rather than across boards, minimized the utility of this approach. In addition to providing more realistic inputs for board decision-making, this division can also allow for observation of differences in the results (if any) between declining - enrolment boards and those whose enrolments are stable. If the Delphi would have been conducted with the entire sample comprising one panel, such differences would have been masked by the "group" response.

The Dephi procedure normally requires 3-4 rounds of questioning. Round I presents a set of sample items, and asks the panel to submit additional items. The new responses are then incorporated into the final form of the questionnaire. In Round II the panel is instructed to rate each item on a specified scale. The responses for each item are then summarized in terms of the median and interquartile range, and this information, along with each individual's own previous response, are returned to the members of the panel for Round III. The respondents are requested, on the basis of the new information about the group response, whether they wish to change their responses. The results of this third round are then summarized in the same manner as was the second round. It is expected that, by the end of the third round, a definition of group "consensus" can be arrived at, based on reduction of variance (i.e., in the interquartile range) about the median response. Depending upon the level of consensus among the respondents, an additional round may be run. Normally, rounds beyond the third or fourth do not yield any improvements in the results.

In this particular study the process was somewhat streamlined to combine Rounds I and II of the sequence outlined above. A list of board curriculum services was compiled for Round I based on the author's previous studies related

to school board management.[1] Respondents were asked to rate each item independently on a five-point scale (1 = Highest) on two criteria 1) Importance to System and 2) Usefulness to Classroom. The list of questions appears in Table 1. The panel was also instructed to add any additonal items relevant to their board's administration or delete any which they considered irrelevant. In this way, the features normally present in two rounds of questioning were streamlined into a single round. Therefore the study could be conducted with only two rounds to provide essentially the same results as three rounds of the original procedure.

Results

1. Dufferin

Responses to Round I of the questionnaire resulted in no additions of items to the original. Although not all members of the panel responded to all the items, there was no consistency in these omissions: in no case did more than two respondents omit any single item. Therefore, it was decided that all items be retained for the second around. Table 2 presents the responses to Round I, with the frequency of responses, median and middle 50% range for each item.

Analysis of Table 2 provides some interesting results. The most immediately obvious one is that, comparing the ratings of items on the basis of "Importance to Board" versus "Usefulness at Classroom Level," the median responses are rather consistently higher on "Importance to Board" in rating these curriculum services listed. Only on items 4,8, and 9 is there a slightly higher median rating on usefulness to the classroom level. It is also interesting to note

---

[1] S. Padro. Information System: Analysis for the Peel Board of Education. Vol. I-II, Dept. of Ed. Planning, OISE, 1977.
_____. Information Analyses for School Board Planning and Management: Dufferin Board, Vol. I-III, Dept. of Ed. Planning, OISE, 1977.

TABLE 1. DELPHI QUESTIONS ON CURRICULUM SERVICES

	Importance to System	Usefulness to Classroom
1. Interpretation of Ministry curriculum guidelines for schools' use.	____	____
2. Cataloguing secondary courses/programs and elementary program descriptions.	____	____
3. Approving all new courses/programs (esp. 'experimental' programs) prior to Board and Ministry submission.	____	____
4. Evaluating new courses/programs.	____	____
5. Provision of guidelines for school program development.	____	____
6. Development of non-certified 'teacher' resources for special programs.	____	____
7. Development of guidelines for acquisition of media/learning resources.	____	____
8. Teacher in-service program development.	____	____
9. Liaison with teacher training institutions.	____	____
10. Teacher courses and conventions: Catalogue and disseminate to schools lists of relevant courses and conventions.	____	____
11. Monitoring of Questionnaire Type Studies of general concern in the areas of curriculum, school program, etc.	____	____
12. Administration of standardized tests across the system.	____	____
13. Development of data bank of test results.	____	____
14. Evaluation of outputs of the schools, e.g. what is the impact of the schools on the youth.	____	____

Others:

TABLE 2. DELPHI QUESTIONNAIRE ANALYSIS - CURRICULUM SERVICES: DUFFERIN BOARD - ROUND I

Question	Rating Importance 1	2	3	4	5	Median	Middle 50%	Rating Usefulness 1	2	3	4	5	Median	Middle 50%
1.	5	4				1	1-2	3	4	2			2	1-2
2.	1	6	2			2	2-2	1	3	3	2		3	2-3
3.	4	2	1			1	1-2		1	3	2		3	3-3
4.		4	3	1		2.5	2-3	2	4	2			2	1-3
5.	2	5				2	1-2	2	3	1	1		2	1.5-2.5
6.		1	5	1		3	3-3		2	2	3		3	3-4
7.			6		1	3	3-3		1	4		2	3	3-3
8.		4	4			2.5	2-3	3	4	2		1	2	1-2
9.			4	4	1	4	3-4		3	2	2	2	3	2.5-4
10.		3	2	3		3	2-4		3	4	1		3	3-3
11.		3	1	3	1	3.5	3-4		3	1	3	1	3.5	3-4
12.	1	4	3	1		2	2-3	1	3	3	1	1	3	2-3
13.		3	3	2	1	3	2-4		1	2	5	1	4	4-4
14.	3	2	1		1	2	1-2.5	2	3	1		1	2	2-2

Rating Scale: 1 = Very High; 2 = High; 3 = Medium; 4 = Low; 5 = Very Low

that no items received a median score of 1 on usefulness at the classroom level, suggesting only a limited effect of these curriculum services at the user level. However, a number of items did receive a median rating of 1 for importance to the system as a whole. These were items 1 and 3, relating to interpretation of Ministry Guidelines and approval of new courses/programs, respectively. No item had a median less than 4: this score was given to item 9 on the Importance to Board criterion and to items 9 and 13 on the Usefulness to Classroom criterion.

For Round II, the questionnaire presented the median score and middle 50% of range on each of the fourteen items, along with the respondent's ratings on Round I. The participants were then required to provide new responses to each item in the light of the group's behavior. Table 3 is a sample of the revised form which was returned to the panel members.

The responses to this questionnaire were analyzed in the same fashion as for Round I, in terms of the median and central 50% rating for each item. Table 4 provides the results of this round with ratings, frequencies, median and middle 50% on each question on the two dimensions of (a) Importance to System and (b) Usefulness to Classroom. Some of the general observations made for Round I results still seem to be applicable as the outcome of this round. The median responses on the Importance to Board criterion are still, overall, higher than on the criterion of Usefulness at the Classroom level. Although no items were rated as 1 on the Usefulness to Classroom criterion, two received this rating on the criterion of Importance to Board. The lowest median score given is 4, and it can be seen that more of these occur on the Usefulness to Classroom criterion than on the Importance to Board criterion: only one item is rated 4 on the latter, while three are given this rating on the former. In order to see whether these results bring the group closer to "consensus," we must compare this outcome to Round I responses. If the group has converged on a median response on an item with a smaller interquartile range than on Round I, then

TABLE 3. DELPHI ON CURRICULUM SERVICES: ROUND II SAMPLE QUESTIONNAIRE

Part I: Curriculum Services	Importance to System				Usefulness to Classroom			
	New Response	Previous Response	Median	Middle 50%	New Response	Previous Response	Median	Middle 50%
1. Interpretation of Ministry Curriculum guidelines for schools' use.	__	2	1	1-2	__	2	2	1-2
2. Cataloguing secondary courses/programs and elementary program descriptions.	__	2	2	2-2	__	2	3	2-3
3. Approving all new courses/programs (esp. 'experimental' programs) prior to Board and Ministry submission.	__	1	1	1-2	__	3	3	3-3
4. Evaluating new courses/programs.	__	2	2.5	2-3	__	2	2	1-3
5. Provision of guidelines for school program development.	__	1	2	1-2	__	1	2	1.5-2.5
6. Development of non-certified 'teacher' resources for special programs.	__	3	3	3-3	__	4	3	3-4
7. Development of guidelines for acquisition of media/learning resources.	__	2	3	3-3	__	3	3	3-3
8. Teacher in-service program development.	__	3	2.5	2-3	__	2	2	1-2
9. Liaison with teacher training institutions.	__	2	4	3-4	__	3	3	2.5-4
10. Teacher courses and conventions: Catalogue and disseminate to schools lists of relevant courses and conventions.	__	4	3	2-4	__	3	3	3-3
11. Monitoring of Questionnaire Type Studies of general concern in the areas of curriculum, school program, etc.	__	3	3.5	3-4	__	4	3.5	3-4
12. Administration of standardized tests across the system.	__	1	2	2-3	__	2	3	2-3
13. Development of data bank of test results.	__	2	3	2-4	__	3	4	4-4
14. Evaluation of outputs of the schools, e.g. what is the impact of the schools on the youth.	__	3	2	1-2.5	__	2	2	2-2

TABLE 4. DELPHI QUESTIONNAIRE ANALYSIS - CURRICULUM SERVICES:

DUFFERIN BOARD - ROUND II

Question	Rating Importance							Rating Usefulness						
	1	2	3	4	5	Median	Middle 50%	1	2	3	4	5	Median	Middle 50%
1.	5	4				1	1-2	3	5	1			2	1-2
2.	1	5	3			2	2-2.75	4	5				2	1-2
3.	7	2				1	1-1	1	1	5	2		3	3-3
4.		5	4			2	2-3	2	4	3			2	2-2.75
5.	2	7				2	2-2		7	2			2	2-2
6.		1	7	1		3	3-3		1	5	3		3	3-3.75
7.			8	1		3	3-3		1	6	1	1	3	3-3
8.		5	4			2	2-3	2	5	2			2	2-2
9.			2	6	1	4	4-4			4	4	1	4	3-4
10.		3	4	2		3	2.25-3	1	3	5			3	2-3
11.		1	4	4		3	3-4		3	1	5		4	2.25-4
12.		7	2			2	2-2	1	3	3	2		3	2-3
13.		3	3	3		3	2.25-3.75		1	3	5		4	3.25-4
14.	1	7	1			2	2-2	2	5	1	1		2	2-2

Rating Scale: 1 = Very High; 2 = High; 3 = Medium; 4 = Low; 5 = Very Low

one may consider this a greater convergence of opinion, or consensus for that item. In addition, changes in the median response are of interest, since one can expect that, in the interval between questionnaires, more thought may have been given to the items and therefore, perhaps more reliable answers given. In order to discuss in detail the alterations in the panel's responses resulting from feedback during Round II, the anlyses on the basis of the two criteria, Importance to System and Usefulness to Classroom will be conducted separately.

Importance to System. The set of responses on the criterion of Importance to System for Round I and Round II are presented in Table 5. The summary at the bottom of table 5 indicates that only three of the items underwent a change in the median response between Round I and Round II. In the three items where this occurred (4,8 and 11) the shift was rather insignificant, moving only 0.5 points up on the scale of values. This shift was not accompanied by any change in the interquartile range of the responses; in fact, it seems to have been the result of omissions of responses to these items on Round I by people who then responded to them in Round II. On three of the items there was convergence on both ends (the interquartile range decreased both on the lower and the upper end), while on four items convergence occurred on one end only. Such shifts in the interquartile range on seven of the items are indicators of movement toward group consensus, since the range of responses is narrowing down to the group's median. On one item (number 2) the median remained the same, but the range increased slightly (0.75) at the upper end, indicating some increase in ratings at the lower values on the scale during the second round. On three of the items there was no change in range. On two of these, the two ends were equal in value, indicating close to perfect consensus, while on one the two ends were different. It is interesting to note that, by the end of the second round, with only a single minor exception all the items had

TABLE 5. CURRICULUM SERVICES - DUFFERIN BOARD ROUND I vs. ROUND II

IMPORTANCE TO SYSTEM CRITERION

	Round I		Round II	
Item No.	Median	Middle 50%	Median	Middle 50%
1.	1	1-2	1	1-2
2.	2	2-2	2	2-2.75
3.	1	1-2	1	1-1
4.	2.5	2-3	2	2-3
5.	2	1-2	2	2-2
6.	3	3-3	3	3-3
7.	3	3-3	3	3-3
8.	2.5	2-3	2	2-3
9.	4	3-4	4	4-4
10.	3	2-4	3	2.25-3
11.	3.5	3-4	3	3-4
12.	2	2-3	2	2-2
13.	3	2-4	3	2.25-3.75
14.	2	1-2.5	2	2-2

Summary of Changes between Rounds:

Change of Median		Convergence		Divergence	No Change in Range	
Up	3	Both ends	3		Ends equal	2
Down	0	One end	4	1	Ends not equal	1

an interquartile range with a difference of one or less. If we can consider the ideal form of "consensus" as being characterized by all or most of the respondents giving the same response, this would result in a median and interquartile range all at the same value. This occurred in seven of the items at the end of Round II (3,5,6,7,9,12 and 14). Two of these items (6 and 7) already indicated this high level of consensus by the end of the first round. If we accept an interquartile range which differs by no more than one and where one of the ends is equal to the value of the median as an indication of consensus by the group, then a total of 12 of the 14 items can be considered as having some kind of group consensus on their value to the system. The only two items which we could not consider to be showing consensus are items 2 and 13, which relate to cataloguing of courses and a data bank of test results.

In order to analyze the panel's assessment of the board's curriculum services with respect to the criterion of importance to the system as a whole, we can rank order the items on the basis of median responses. Because of the difficulties associated with rank ordering on the basis of such a narrow scale, it would have been preferable to rank order them on the basis of the sum of the values given each item. However, since some respondents did not respond to all the items, the value scores on all items would not have been consistent. If the objective of this study is to differentiate primarily between highly-valued and low-valued services of a board, ranking the items according to median response (and not differentiating between them) should suffice to provide the required information.

Table 6 provides the items on the questionnaire ranked according to the value of the median score on the criterion of Importance to Board. It can be expected that those items rated at levels 1 and 2 would, from the users' point

TABLE 6. CURRICULUM SERVICES - DUFFERIN BOARD RANKING OF ROUND II ITEMS - IMPORTANCE TO BOARD

Item No.	Item	Median
1.	Interpretation of Ministry curriculum guidelines for schools' use.	1
3.	Approving all new courses/programs (esp. 'experimental' programs) prior to Board and Ministry submission.	1
2.	Cataloguing secondary courses/programs and elementary program descriptions.	2
4.	Evaluating new courses/programs	2
5.	Provision of guidelines for school program development.	2
8.	Teacher in-service program development.	2
12.	Administration of standardized tests across the system.	2
14.	Evaluation of outputs of the schools, e.g. what is the impact of the schools on the youth.	2
6.	Development of non-certified 'teacher' resources for special programs.	3
7.	Development of guidelines for acquisition of media/learning resources.	3
10.	Teacher courses and conventions: Catalogue and disseminate to schools lists of relevant courses and conventions.	3
11.	Monitoring of Questionnaire Type Studies of general concern in the areas of curriculum, school program, etc.	3
13.	Development of data bank of test results.	3
9.	Liaison with teacher training institutions.	4

of view, be protected by the board, while those rated at the low end, 3-4, could probably be reduced. It is interesting to note that none of the services were rated at 5, and only one was rated as low as 4.

Usefulness to Board. In order to analyze the responses on this criterion, table 7 presents the median and middle 50% range on each item for Rounds I and II. The summary at the bottom of the table indicates the changes which occurred as a result of feedback to the respondents. Three items underwent a change in the value of the median: one went up one point (number 2) while two shifted down (numbers 9 and 11).

Analysis of changes in the interquartile ranges provides some indication of possible convergence on a consensus of values. It can be seen that in four items convergence of the interquartile range has occurred: two of these converged at both ends of the range, and the other two occurred only at one end. On two items divergence occurred in the interquartile range, at one end only. On five of the items, no change occurred in the middle 50% range. Of these, three already had the two ends of the central 50% range equal, and therefore one could not expect any "better" indication of consensus after the first round. In addition, items such as number 1, which showed no change between the first and second rounds, but had a relatively narrow interquartile range, (when one of the ends equals the median, and the spread between the ends is equal to one) may also be considered as indicating a rather high degree of consensus to begin with. Thus, a total of 9 items out of the fourteen can be considered as items with an indication of group consensus. This result is quite a bit lower than that found for the criterion of Importance to Board, on which 12 of the 14 items indicated an acceptable level of consensus.

The items on the questionnaire can be rank-ordered according to median score on the second round in order to understand the group's assessment of these

TABLE 7. CURRICULUM SERVICES - DUFFERIN BOARD ROUND I vs. ROUND II

USEFULNESS TO CLASSROOM CRITERION

	Round I		Round II	
Item No.	Median	Middle 50%	Median	MIddle 50%
1.	2	1-2	2	1-2
2.	3	2-3	2	1-2
3.	3	3-3	3	3-3
4.	2	1-3	2	2-2.75
5.	2	1.5-2.5	2	2-2
6.	3	3-4	3	3-3.75
7.	3	3-3	3	3-3
8.	2	1-2	2	2-2
9.	3	2.5-4	4	3-4
10.	3	3-3	3	2-3
11.	3.5	3-4	4	2.25-4
12.	3	2-3	3	2-3
13.	4	4-4	4	3.25-4
14.	2	2-2	2	2-2

Summary of Changes Between Rounds:

Change of Median		Convergence		Divergence	No Change in Range	
Up	1	Both ends	2		Ends equal	3
Down	2	One end	2	2	Ends not equal	2

areas with respect to Usefulness at the Classroom Level. Table 8 provides this listing. It is evident from this list that the higher ranked items have demonstrated some degree of consensus as to their rating.

It is interesting to note that none of the items were rated at level 1, and the great majority of items were rated 2 or 3 on this criterion. Four areas ranked at the bottom end with a rating of 4. The implications of these responses are interesting from the point of view of the board's administration: none of the curriculum service functions are viewed as having very high usefulness at the level of the classroom, and three are perceived to be at the low end of the scale.

Using Table 4 as a reference, one can compare the median responses on Usefulness at the Classroom level and Importance to the Board. Although no items on the former criterion are rated at level 1, the two items rated as 1 on the Importance criterion (1 and 3), are rated at 2 and 3 respectively on the Usefulness criterion. A general correspondence does seem to exist, however, between the remainder of the items rated 2 and 3 on the scale. Exceptions to this are items 11 and 13 where a rating of 3 on Importance corresponds to a rating 4 on Usefulness; also, item 12 has a rating of 2 on Importance versus a rating of 3 on Usefulness. The only remaining item rated at level 4 has the same rating on both Importance and Usefulness, item 9.

Thus there does seem to be a general correspondence in the rating of the items on the two criteria. Where there is a discrepancy, (except in the case of item 3), the difference is no greater than one.

Implications. Implications of these results are not entirely clear, if the board were desirous of cutting back in curriculum services at the central board level. From the users' point of view, the board's functions in this area are generally more important to the board as a whole than to usefulness at

TABLE 8. CURRICULUM SERVICES - DUFFERIN BOARD RANKING OF ROUND II ITEMS - USEFULNESS TO CLASSROOM

Item No.	Item	Median
* 1.	Interpretation of Ministry curriculum guidelines for schools' use.	2
2.	Cataloguing secondary courses/programs and elementary program descriptions.	2
* 4.	Evaluating new courses/programs	2
* 5.	Provision of guidelines for school program development.	2
* 8.	Teacher in-service program development.	2
*14.	Evaluation of outputs of the schools, e.g. what is the impact of the schools on the youth.	2
* 3.	Approving all new courses/programs (esp. 'experimental' programs) prior to Board and Ministry submission.	3
* 6.	Development of non-certified 'teacher' resources for special programs.	3
* 7.	Development of guidelines for acquisition of media/learning resources.	3
10.	Teacher courses and conventions: Catalogue and disseminate to schools lists of relevant courses and conventions.	3
*12.	Administration of standardized tests across the system.	3
9.	Liaison with teacher training institutions.	4
11.	Monitoring of Questionnaire Type Studies of general concern in the areas of curriculum, school program, etc.	4
13.	Development of data bank of test results.	4

*Indicates consensus on the item.

the level of the classroom. However, the board should seek to protect those areas rated highly on the criterion of usefulness to the classroom, but perhaps look into accomplishing them at the level of the school where they may have more impact, rather than at the level of the central board administration. Areas rated at level 4 should be brought into question as to their utility, both to the Board and at the school level.

2. Peel

Responses to Round I of the questionnaire at the Peel Board resulted in a single item additon for the second round. This was question 15, as follows:

15. Development of core curriculum

Table 9 presents the responses to Round I with the frequency of responses, medians and middle 50% range for each item. Although the ratings appear to be somewhat higher, in general, on the Importance than on the Usefulness criterion, this distinction between the results for the two criteria is not as striking as in the case of the Dufferin Board. There are some items rated at 1 for both criteria, but there are no 4's given on the Importance criterion, as compared to one 4 on the Usefulness criterion.

For Round II, the addition of item 15 above was made to the questionnaire. The respondents also received feedback regarding the median and interquartile range for each item which appeared on Round I, as well as their own response on that round. The procedure required that new responses be given in Round II, in the light of the group's response. Table 10 presents a summary of the Round II responses on both criteria. The general observations found for Round I appear to still hold true in this round.

In order to see whether the group has been brought closer to "consensus,"

TABLE 9. DELPHI QUESTIONNAIRE ANALYSIS - CURRICULUM SERVICES: PEEL BOARD - ROUND 1

Question	Rating Importance							Rating Usefulness						
	1	2	3	4	5	Median	Middle 50%	1	2	3	4	5	Median	Middle 50%
1.	6	1	1			1	1-1	1	7				2	2-2
2.	4	1	2	1		1.5	1-3	3	2	1	2		2	1-3
3.	4	1	2	1		1.5	1-3	1	4	2	1		2	2-3
4.	5		2	1		1	1-3	4	2	2			1.5	1-2
5.	5	2	1			1	1-2	3	5				2	1-2
6	3		3	2		3	1-3	1	3	2	2		2.5	2-3
7.	3		4	1		3	1-3		2	4	2		3	3-3
8.	4	2	1	1		1.5	1-2	6	2				1	1-1
9.	4	2	2			1.5	1-2	3	2		3		2	1-4
10.	4		1	3		2	1-4	5		3			1	1-3
11.	1	3	2	2		2.5	2-3		1	3	2	1	3.5	3-4
12.	4	2	2			1.5	1-2	1	2	3	1	1	3	2-4
13.	1	1	4	2		3	3-3	1		1	3	3	4	4-5
14.	3	1	3	1		2.5	1-3	4	1	2	1		1.5	1-3

TABLE 10. DELPHI QUESTIONNAIRE ANALYSIS - CURRICULUM SERVICES: PEEL BOARD - ROUND II

Question	Rating Importance							Rating Usefulness						
	1	2	3	4	5	Median	Middle 50%	1	2	3	4	5	Median	Middle 50%
1.	8	2				1	1-1	1	7		1		2	2-2
2.	4	3	3			2	1-2.5		6	1	2		2	2-2.75
3.	6	1	3			1	1-2.5		7	2			2	2-2
4.	7	2	1			1	1-1.5	4	4				1.5	1-2
5.	6	4				1	1-2	4	6				2	1-2
6	3		5	2		3	2-3	1	2	5	1		3	2-3
7.	1	2	5	2		3	3-3		1	6	1		3	3-3
8.	5	3	2			1.5	1-2	8	1				1	1-1
9.	3	5	1	1		2	2-2	1	4	2	2		2	2-3
10.	3	3	2	2		2	2-3	5	3			1	1	1-2
11.		4	5	1		3	2-3			5	4		3	3-4
12.	4	6				2	2-2	1	2	3	4	1	3	2.25-3.75
13.	2	1	6	1		3	2.5-3	1		2	1	5	5	3.25-5
14.	1	7	2			2	2-2	3	5	1			2	1.25-2
15.	6	1	1			1	1-1	7	1				1	1-1

it is necessary to compare responses on Round I and Round II separately for the two criteria of Importance and Usefulness.

Importance to Board. Table 11 presents the Round I and Round II responses of the panel on the criterion of Importance to System. There is no response to question 15 for Round I, since it was only added on in Round II. The summary at the bottom of the table indicates changes that occurred as a result of feedback. Six items underwent a change in median: two went up (3 and 14) and four shifted down (3,9, 11 and 12). None of these changes were more than one half a point in either direction. Four items had evidence of convergence on the basis of the interquartile range: one at both ends and 3 at one end only. One item (13) had divergence in the interquartile range, with a shift from a range of 3-3 to one of 2.5-3. Three items did not have any change between rounds: one of these had equal ends and therefore could not be expected to shift to a closer position.

Considering all the items with (a) an interquartile range of equal value, (b) with a narrow interquartile range of 1 (where one of the ends is equal to the median) and (c) which showed a degree of convergence between Rounds I and II as indicators of "consensus," we find that 11 of the 15 items on Round II can be considered to have an apparent degree of consensus by the group.

The items on Round II are rank ordered in Table 12 on the basis of median scores. It should be noted that a high proportion of the items ranked at level 1 and none rated below level 3 on this criterion. Thus, it seems clear that the panel feels the curriculum services offerred by the Board are generally of rather high importance to the board as a whole. This bears out the conclusion drawn for the Dufferin Board, where the curriculum services are perceived to be generally high on the Importance to Board criterion,but even more strongly. It would certainly be expected that, if any cuts were to be made in the services,

TABLE 11. CURRICULUM SERVICES - PEEL BOARD ROUND I vs. ROUND II

IMPORTANCE TO SYSTEM CRITERION

	Round I		Round II	
Item No.	Median	Middle 50%	Median	Middle 50%
1	1	1-1	1	1-1
2.	1.5	1-3	2	1-2.5
3.	1.5	1-3	1	1-2.5
4.	1	1-3	1	1-1.5
5.	1	1-2	1	1-2
6.	3	1-3	3	2-3
7.	3	1-3	3	3-3
8.	1.5	1-2	1.5	1-2
9.	1.5	1-2	2	2-2
10.	2	1-4	2	2-3
11.	2.5	2-3	3	2-3
12.	1.5	1-2	2	2-2
13.	3	3-3	3	2.5-3
14.	2.5	1-3	2	2-2
15.			1	1-1

Summary of Changes Between Rounds:

Change of Median		Convergence		Divergence	No Change in Range	
Up	2	Both ends	1		Ends equal	1
Down	4	One end	3	1	Ends not equal	2

TABLE 12. CURRICULUM SERVICES - PEEL BOARD RANKING OF ROUND II ITEMS - IMPORTANCE TO BOARD

Item No.	Item	Median
* 1	Interpretation of Ministry curriculum guidelines for schools' use.	1
3.	Approving all new courses/programs (esp. 'experimental' programs) prior to Board and Ministry submission.	1
* 4.	Evaluating new courses/programs.	1
* 5.	Provision of guidelines for school program development.	1
*15.	Development of core curriculum.	1
* 8.	Teacher in-service program development.	1.5
2.	Cataloguing secondary courses/programs and elementary program descriptions.	2
* 9.	Liaison with teacher training institutions.	2
*10.	Teacher courses and conventions: Catalogue and disseminate to schools lists of relevant courses and conventions.	2
*12.	Administration of standardized tests across the system.	2
*14.	Evaluation of outputs of the schools, e.g. what is the impact of the schools on the youth.	2
* 6.	Development of non-certified 'teacher' resources for special programs.	3
* 7.	Development of guidelines for acquisition of media/ learning resources.	3
11.	Monitoring of Questionnaire Type Studies of general concern in the areas of curriculum, school program, etc.	3
13.	Development of data bank of test results.	3

*Items for which consensus is indicated.

then they would have to occur in those services ranked at level 3, while protecting the highly rated services at levels 1 and 2.

Usefulness to Classroom. Table 13 presents the Round I and Round II responses of the group on this criterion. The summary indicates one item shifted upward in median response, while 3 shifted downward. Of those which changed their medians, all but one did so for 0.5 of a point. The remaining one shifted a full point. A total of five items indicated convergence on the interquartile range, and none expressed any divergence. Five items did not change at all. Using the same criteria as in the previous cases to determine the items for which consensus can be considered to have occurred, we find that 14 of the 15 items can be categorized in this group. Three of the items which showed a slight shift in median were also included here (6,11 and 14) because of the minor nature of the shift (0.5) and the fact that the shift either did not increase the original narrow interquartile range or, indeed, reduced it. The only case which cannot be considered as having consensus is item 13, which has a one-point change in median accompanied by a widening of the interquartile range. This item relates to the development of a data bank of test results.

Table 14 presents the results of this analysis with the items ranked in order of their median ratings. A substantial number of the items are ranked at the high end of the scale, and only one item is rated at level 5. This latter is the only item for which consensus could not be derived. Interestingly, no items received rating of 4. Thus, the findings at the Dufferin Board, which graded the services on usefulness to the classroom at a significantly lower level than on importance to the board, have not been borne out in the Peel analysis. Here, the value accorded to the services on the basis of usefulness at the classroom level is quite comparable with that at the Board level.

TABLE 13. CURRICULUM SERVICES - PEEL BOARD ROUND I vs. ROUND II

USEFULNESS TO CLASSROOM CRITERION

	Round I		Round II	
Item No.	Median	Middle 50%	Median	Middle 50%
1.	2	2-2	2	2-2
2.	2	1-3	2	2-2.75
3.	2	2-3	2	2-2
4.	1.5	1-2	1.5	1-2
5.	2	1-2	2	1-2
6.	2.5	2-3	3	2-3
7.	3	3-3	3	3-3
8.	1	1-1	1	1-1
9.	2	1-4	2	2-3
10.	1	1-3	1	1-2
11.	3.5	3-4	3	3-4
12.	3	2-4	3	2.25-3.75
13.	4	4-5	5	3.25-5
14.	1.5	1-3	2	1.25-2
15.			1	1-1

Summary of Changes Between Rounds

Change of Median		Convergence		Divergence	No Change in Range	
Up	1	Both ends	3	0	Ends equal	3
Down	3	One end	2	0	Ends not equal	2

TABLE 14. CURRICULUM SERVICES - PEEL BOARD RANK OF ITEMS ON USEFULNESS TO CLASSROOM - ROUND II

Item No.	Item	Rating
* 8.	Teacher in-service program development.	1
*10.	Teacher courses and conventions: Catalogue and disseminate to school .... (see original).	1
*15.	Development of core curriculum.	1
* 4.	Evaluating new courses/programs.	1.5
* 1.	Interpretation of Ministry curriculum guidelines for schools' use.	2
* 2.	Cataloguing secondary courses/programs and elementary program descriptions.	2
* 3.	Approving all new courses/programs (esp. 'experimental' programs) prior to Board and Ministry submission.	2
* 5.	Provision of guidelines for school program development.	2
* 9.	Liaison with teacher training institutions.	2
*14.	Evaluation of outputs of the schools, e.g. what is the impact of the schools on the youth.	2
* 6.	Development of non-certified 'teacher' resources for special programs.	3
* 7.	Development of guidelines for acquisition of media/ learning resources.	3
*11.	Monitoring of Questionnaire Type Studies of general concern in the areas of curriculum, school program, etc.	3
*12.	Administration of standardized tests across the system.	3
*13.	Development of data bank of test results.	5

*Items on which consensus has been attained.

A comparison of the relative ranks of the items on the two criteria can be made via table 10. Although there is no clear-cut one-to-one correspondence in the ratings, all elements rated 1 or 2 on one criterion have a 1 or 2 on the other. Thus, the items in the top 2 categories of values are valued highly on both criteria. All the elements rated at a median value of 3 correspond to one another on both criteria, except for question 13, which has a rating of 3 on Importance opposite to a rating of 5 on Usefulness.

Implications. The above results allow us to draw clear implications for the Peel Board, in terms of protecting the curriculum services offerred during a period of contraction. Since essentially the same items are valued highly on both criteria, one may suggest that the top-rated items be preserved as Board functions, eliminating the lowest-rated ones if the need should arise.

C. Delphi Study on Quality Program

Objectives and Rationale

The objective of this Delphi study was to determine major (or core) aspects of the curriculum which would constitute a "quality" educational program, and the structural conditions under which such a program could be attained. Since there is a growing concern that the current decline in enrolments may result in a general lowering of the quality of our educational programs, it was felt to be a useful endeavour to (a) assess the components of our instructional programs which educators consider to be essential and (b) to determine some of the basic structural conditions affected by enrolment required for their attainment.

Procedures

This Delphi study was conducted at the same two boards as the previous one, using the same sample and same number of rounds. The two Delphis were presented to the panel as two parts of the same questionnaire, thereby simplifying the procedure. As with the first Delphi study, the two boards were treated independently in the analysis.

Ontario Ministry of Education guidelines were used as the basis for the items on the questionnaire relating to quality education. The items on elementary (Primary and Junior) education were drawn primarily from The Formative Years, while for secondary education, Secondary School Diploma Requirements: H.S.1 - 1977-78 was the source. Tables 15, 16 and 17 illustrate the Elementary (K-8) items presented to the panel. Table 15 presents the items relating to the Primary division, Table 16 presents those for the Junior division and Table 17 lists those for Primary and Junior. The items relating to secondary education (9-13) appear on Table 18. Some items were included which do not appear specifically on Ministry guidelines, but which are believed by some curriculum experts to be in danger if budgets are cut. Items 32,33 and 34 on table 17 are such items for which an assessment was desired. The respondents were requested to rate each item on the questionnaire on a five-point scale of importance, with 1 = very high and 5 = very low. Table 19 presents the items on structural requirements in terms of the numerical components of schools. Responses on this section of the questionnaire were simply in terms of the numerical values which the panel member considers relevant. All respondents were instructed to complete questions relating both to elementary and secondary instruction on the basis that the Delphi was to present the consensus of the educational community on these issues.

On each segment of the questionnaire, the panel was instructed to add any additional items considered relevant, or to delete those they considered irrelevant.

TABLE 15. DELPHI ITEMS ON QUALITY PROGRAM - PRIMARY

Elementary (K-8)

Primary	Rating
1. Understand and use numbers and operations.	____
2. Use measurement in relevant situations with an understanding of the concepts involved.	____
3. Understand relationships involving space and shape.	____
4. Listen with sensitivity and discrimination.	____
5. Ability to articulate one's own ideas, thoughts, and feelings with confidence and lucidity.	____
6. Learn to read using the initial skills and processes that one finds most effective.	____
7. Appreciate the significance and function of reading in one's own life.	____
8. Read independently with enjoyment and with a fluency appropriate to one's stage of development.	____
9. Express experiences, thoughts, and feelings in writing with clarity and sensitivity.	____

TABLE 16. DELPHI ITEMS ON QUALITY PROGRAM - JUNIOR

Junior	Rating
10. Use mathematical concepts and arithmetic operations with understanding.	____
11. Consolidate and extend the measurements skills outlined for the Primary Division.	____
12. Understand more complex spatial relationships.	____
13. Become aware of deeper levels of meaning in reading.	____
14. Use reading as a source of information.	____
15. Develop a deeper appreciation of excellence in reading materials.	____
16. Express in writing personal experiences, thoughts, and feelings with greater clarity and sensitivity.	____
17. Understand that writing can be used for many purposes and that the purpose determines the form of writing and the kind of language used.	____
18. Develop legible handwriting commensurate with one's own psychomotor skills.	____
19. Extend and consolidate listening skills and develop an appreciation of oral communication and literature.	____
20. Extend and consolidate the speaking skills outlined for the Primary Division.	____

TABLE 17. DELPHI ITEMS ON QUALITY PROGRAM - PRIMARY AND JUNIOR

Primary and Junior

21. Increase sensitivity of perception through the use of all the senses and develop the capacity to express this sensitivity through a variety of creative media. _____

22. Develop self-awareness and self-confidence through drama and related creative activities. _____

23. Develop sensitivity to sound and thus acquire a base for growth in music. _____

24. Develop visual awareness sensitivity and appreciation. _____

25. Develop creativity, confidence, and physical fitness through physical activities. _____

26. Acquire some basic understanding of one's own physical and emotional nature and of the principles of healthy living. _____

27. Begin to develop a personal value system within a context that reflects the priorities of a concerned society and at the same time recognizes the integrity of the individual. _____

28. Develop the ability to make informed and rational decisions. _____

29. Understand social relationships at a level appropriate to one's own stage of development. _____

30. Understand the environment, both in terms of the nature of its parts and of the patterns that characterize it as a whole. _____

31. Acquire a reasoned knowledge of and pride in Canada. _____

32. Participation in an art program. _____

33. Develop appreciation and skill in music. _____

34. Participation in a program of physical education. _____

Others:

TABLE 18. DELPHI ITEMS ON QUALITY PROGRAM - SECONDARY

Secondary (9-13)	Rating
1. Provision of a broad program in the area of Communications (linguistic, mechanical, symbolic or pictorial).	____
2. Provision of a broad program in the area of Social and Environmental Studies.	____
3. Provision of a broad program in the area of Pure and Applied Sciences.	____
4. Provision of a broad program in the area of Arts.	____
5. Each student should have the basic skills that will allow him to continue his education with competence and confidence.	____
6. Eaoh student should take courses that will allow him to capitalize on his abilities, interests, needs, and educational goals without unnecessarily limiting his future occupational and educational choices.	____
7. Each student should be advised of the importance of certain national priorities in education, for example, physical fitness, an understanding and appreciation of both the English and French languages, and an awareness of Canada's heritage.	____
8. The aims and objectives of French-language instructional units will be most fully realized if students in these units include Francais in each year of their program of studies.	____
9. Each student should be encouraged to take courses that seem appropriate to his abilities and expectations of achievement.	____
10. Unscheduled time and independent study should be available only to the extent that they provide the appropriate balance or support to a student's total program.	____
11. A student's program should possess the qualities of coherence, continuity, and balance.	____

(cont'd)

Rating

12. All students who are capable of doing so should be strongly encouraged to expand and deepen their studies by taking more than the minimum number of credits for the Secondary School Graduation Diploma, with credits preferably from as challenging a level as possible. ____

13. A student who exhibits the ability, maturity, and motivation to master an accelerated educational program, who has parental approval, and who is acting on the advice of the principal may be assisted in planning a program of study that will enable him to complete the Secondary School Honour Graduation Diploma in fewer than five years. ____

14. Provision of appropriate programs for the entire range of exceptional students in the form of special education services. ____

15. Provision of extra-curricular, social and cultural pursuits. ____

16. Provision of activities relating to community service. ____

17. Provision of opportunities for travel. ____

18. Allowing students to have extended use of community resources other than the school. ____

19. Offering special programs in conjunction with other community agencies. ____

20. Provision of special training that lies outside the regular school program. ____

21. Maintenance of the Credit System as the basis of student program planning. ____

Others:

TABLE 19. DELPHI ITEMS ON QUALITY PROGRAM - STRUCTURAL ASPECTS

Please answer the following questions according to your own best professional judgement.

1. In order to offer a quality program within <u>one</u> elementary school (K-8), what would you consider to be the:

	Number
(a) Minimum number of students	____
(b) Optimal number of students	____
(c) Maximum number of students	____
(d) Minimum number of teachers	____
(e) Optimal number of teachers	____
(f) Minimum class size	____
(g) Optimal class size	____
(h) Maximum class size	____

2. In order to offer a quality high school program (9-13) within your area what would you consider the:

(a) Minimum number of students	____
(b) Optimal number of students	____
(c) Maximum number of students	____
(d) Minimum number of teachers	____
(e) Optimal number of teachers	____
(f) Minimum class size	____
(g) Optimal class size	____
(h) Maximum class size	____

The results of the study are presented in the following sections for the Dufferin and Peel Boards.

Results

1. Dufferin

The results of the questionnaire were tabulated separately in terms of: elementary, secondary and structural components of schools. The analysis will deal with the results of each of the above segments independently.

Elementary Objectives (K-8). The objectives presented to the respondents for elementary instruction were presented in tables 15,16 and 17, relating to Primary, Junior, and Primary and Junior objectives, respectively. The results of Round I of the Delphi are presented in Table 20. No new items were added by the panel. It is evident from this table that the majority of items on the elementary objectives had a median rating of 1: very high importance. It can also be noted that going down the list, the items toward the bottom get an increasingly frequent rating of 2, rather than 1, so that the majority of the items listed for the Primary and Junior (combined) division received a majority of items rated at 2. No item on this set of objectives received a median rating less than 2.

For Round II, the questionnaires were returned to the panel members with the median and middle 50% range on each item, derived from Round I, as well as the respondent's own response to Round I. Panelists were asked if they now wished to change their response in the light of this new information. Table 21 presents a summary of the results of the second round of questioning. Upon visual inspection, the results appear to be similar to those of Round I.

TABLE 20. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION: DUFFERIN BOARD - ROUND I ELEMENTARY

	Elementary Objectives	Rating 1	2	3	4	5	Median	Middle 50%
PRIMARY	1.	9					1	1-1
	2.	6	2				1	1-1
	3.	6	2	1			1	1-2
	4.	7	1	1			1	1-1.5
	5.	8	1				1	1-1
	6.	9					1	1-1
	7.	6	1	1		1	1	1-1.5
	8.	7	1	1			1	1-1
	9.	6		2	1		1	1-3
JUNIOR	10.	8	1				1	1-1
	11.	7	2				1	1-1
	12.	4	3	2			2	1-2
	13.	6	1		2		1	1-2
	14.	8		1			1	1-1
	15.	4	3		1	1	2	1-2
	16.	5	3	1			1	1-2
	17.	5	2		1	1	1	1-2
	18.	7		2			1	1-3
	19.	5	3	1			1	1-2
	20.	6	2	1			1	1-2
PRIMARY & JUNIOR	21.	6	1	1		1	1	1-2
	22.	4	2	3			2	1-3
	23.	3	2	4			2	1.5-3
	24.	4	2	3			2	1-2.5
	25.	4	5				2	1-2
	26.	4	3	3			2	1-2
	27.	4	2	2	1		2	1-2.5
	28.	7	2				1	1-1
	29.	5	2	2			1	1-2
	30.	4	2	3			2	1-2.5
	31.	5	2	2			1	1-2
	32.	3	3	2		1	2	1.5-2.5
	33.	2	3	2		1	2	2-3
	34.	5	3	1			1	1-2

Scale: 1 = very high importance; 2 = high importance; 3 = medium importance; 4 = low importance; 5 = very low importance.

TABLE 21. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION: DUFFERIN BOARD - ROUND II ELEMENTARY

	Elementary Objectives	Rating 1	2	3	4	5	Median	Middle 50%
PRIMARY	1.	9					1	1-1
	2.	7	2				1	1-1
	3.	6	3				1	1-1.75
	4.	7	2				1	1-1
	5.	8	1				1	1-1
	6.	9					1	1-1
	7.	6	2		1		1	1-2
	8.	8	1				1	1-1
	9.	6	1	1	1		1	1-1.75
JUNIOR	10.	9					1	1-1
	11.	9					1	1-1
	12.	4	5				2	1.25-2
	13.	8			1		1	1-1
	14.	7	2				1	1-1
	15.	4	4			1	2	1-2
	16.	5	2	2			1	1-2
	17.	6	2			1	1	1-1.75
	18.	5	3	1			1	1-2
	19.	4	5				2	1-2
	20.	7	2				1	1-1
PRIMARY & JUNIOR	21.	5	3	1			1	1-2
	22.	4	4	1			2	1-2
	23.	2	4	3			2	2-2.75
	24.	3	6				2	1.25-2
	25.	3	6				2	1.25-2
	26.	3	5	1			2	1.25-2
	27.	3	4	2			2	1.25-2
	28.	7	2				1	1-1
	29.	5	2	2			1	1-2
	30.	3	4	2			2	1.25-2
	31.	5	3	1			1	1-2
	32.	1	6	1		1	2	2-2
	33.	1	5	2		1	2	2-2.75
	34.	5	4				1	1-2

Scale: 1 = very high importance; 2 = high importance; 3 = medium importance; 4 = low importance; 5 = very low importance.

TABLE 22. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION: DUFFERIN BOARD - ROUND I VS. ROUND II - ELEMENTARY OBJECTIVES

Elementary Objectives	Round I		Round II	
	Median	Middle 50%	Median	Middle 50%
* 1.	1	1-1	1	1-1
* 2.	1	1-1	1	1-1
* 3.	1	1-2	1	1-1.75
* 4.	1	1-1.5	1	1-1
* 5.	1	1-1	1	1-1
* 6.	1	1-1	1	1-1
7.	1	1-1.5	1	1-2
* 8.	1	1-1	1	1-1
* 9.	1	1-3	1	1-1.75
* 10.	1	1-1	1	1-1
* 11.	1	1-1	1	1-1
* 12.	2	1-2	2	1.25-2
* 13.	1	1-2	1	1-1
* 14.	1	1-1	1	1-1
* 15.	2	1-2	2	1-2
* 16.	1	1-2	1	1-2
* 17.	1	1-2	1	1-1.75
* 18.	1	1-3	1	1-2
19.	1	1-2	2	1-2
* 20.	1	1-2	1	1-1
* 21.	1	1-2	1	1-2
* 22.	2	1-3	2	1-2
* 23.	2	1.5-3	2	2-2.75
* 24.	2	1-2.5	2	1.25-2
* 25.	2	1-2	2	1.25-2
* 26.	2	1-2	2	1.25-2
* 27.	2	1-2.5	2	1.25-2
* 28.	1	1-1	1	1-1
* 29.	1	1-2	1	1-2
* 30.	2	1-2.5	2	1.25-2
* 31.	1	1-2	1	1-2
* 32.	2	1.5-2.5	2	2-2
* 33.	2	2-3	2	2-2.75
* 34.	1	1-2	1	1-2

*Items indicating consensus by second round.

Table 22 compares Round I and Round II results. Table 23 below provides a summary of changes that occurred as a result of feedback between these two rounds.

Table 23. Summary of Changes Between Round I and Round II on Quality Education - Elementary - Dufferin Board

Change of Median		Convergence		Divergence		No Change in Range	
Up		Both ends	4			Ends equal	9
Down	1	One end	13	1		Ends not equal	6

This table shows only one item of the 34 changed its median value (number 19). Seventeen items indicated convergence in the middle 50% range while only one item showed a divergence in the second round. A total of 15 items did not change their range. There is a marked degree of consensus by the group on these items, with 32 of the items indicating some evidence of consensus. It seems clear that there is strong indication by the group of the very high importance accorded to the primary objectives, probably because they lay the foundation for all future learning. There is little point in preparing an additional table to rank order the items, since the results are clear.

Secondary Objectives (9-13). This set of objectives was presented in table 18. As a result of the first round of questioning, no new responses were added. Table 24 presents the results of Round I. It is immediately evident that for this set of objectives, there is more variability in the responses given; they range from a median of 1 to a median of 3. Most of the items with a median of 1 emphasize the acquisition of what may be considered the major areas of knowledge. Table 25 presents the result of Round II. Over-all, not much change seems to have occurred between the two rounds. Table 26 compares

TABLE 24. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION: DUFFERIN BOARD - ROUND I - SECONDARY OBJECTIVES

Secondary Objectives	Rating					Median	Middle 50%
	1	2	3	4	5		
1.	7	2				1	1-1
2.	7	2				1	1-1
3.	7	2				1	1-1
4.	7	1		1		1	1-1
5.	7	2				1	1-1
6.	6	3				1	1-1.75
7.	3	2	2	1	1	2	1.25-2
8.	1	2	2	2	1	3	2.5-4
9.	6	3				1	1-1.75
10.	7		2			1	1-1
11.	5	3	1			1	1-2
12.	3	5	1			2	1.25-2
13.	2	3	3	1		2	2-3
14.	3	4		1		2	1.25-2
15.		4	5			3	2-3
16.		3	4	2		3	2.25-3
17.		1	5	3		3	3-3.75
18.	1	4	3	1		2	2-3
19.		3	5	1		3	2.25-3
20.	1	4	4			2	2-3
21.	2	3	3	1		2.5	2-3

TABLE 25. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION: DUFFERIN BOARD - ROUND II - SECONDARY OBJECTIVES

Secondary Objectives	Rating 1	2	3	4	5	Median	Middle 50%
1.	8	1				1	1-1
2.	8	1				1	1-1
3.	8	1				1	1-1
4.	8			1		1	1-1
5.	8	1				1	1-1
6.	7	2				1	1-1
7.	1	5	2		1	2	2-2.75
8.		3	4	1	1	3	2.25-3
9.	6	3				1	1-1.75
10.	7	1	1			1	1-1
11.	5	3	1			1	1-2
12.	3	5	1			2	1.25-2
13.	1	4	3	1		2	2-3
14.	3	5		1		2	1.25-2
15.		3	6			3	2.25-3
16.		1	7	1		3	3-3
17.			7	2		3	3-3
18.	1	4	4			2	2-3
19.		2	7			3	3-3
20.	1	4	4			2	2-3
21.	1	4	3	1		2	2-3

the results of Round I and II for further analysis. It can be seen that only one median changed on the second round this was for item 21, and the shift was 0.5 points upward. Since the range remained the same on this item, this can be seen as further convergence by the group toward a position of consensus, rather than a deviation from consensus. Six items showed convergence in their middle 50% range, and 13 items had no change. Item 7 presents an unusual change as a result of feedback: the median remained the same, but the range shifted in such a way that the spread remained equal (0.75) but the values at the two ends went down. Thus, the range shifted downward, but the median response remained constant. There is no reason to accept this phenomenon as indicating shift toward consensus. The asterisks on table 26 indicate that almost all of the items on this segment of the questionnaire can be considered to have consensus. There is no need to prepare a table to rank-order the items, since they almost form clusters as presented in table 26. The majority of the items are rated as 1 or 2, with only five items rated as 3.

Structural Components. The structural components were included as part of the Delphi study to provide information on how practicing educators perceive the effect of numerical variations in enrolment and related factors and quality education. This component was divided into two main categories: elementary (K-8) and secondary (9-13). For each category, the panel members were required to fill in the numerical responses in accordance with their "best professional judgement." These items related to number of students in a school, number of teachers in a school and class size. Both minimum and maximum numbers were required for all three areas, while for two of the areas, an optimal quantity was also required. Providing for such a range of responses, rather than a single estimate, it was hoped that the variation in possible future conditions could be accounted for. From the respondents' point of view, it provided a

TABLE 26. DELPHI QUESTIONNAIRE ANALYSIS-QUALITY EDUCATION: DUFFERIN BOARD

ROUND I VERSUS ROUND II - SECONDARY OBJECTIVES

Secondary Objectives	Round I		Round II	
	Median	Middle 50%	Median	Middle 50%
* 1.	1	1-1	1	1-1
* 2.	1	1-1	1	1-1
* 3.	1	1-1	1	1-1
* 4.	1	1-1	1	1-1
* 5.	1	1-1	1	1-1
* 6.	1	1-1.75	1	1-1
7.	2	1.25-2	2	2-2.75
* 8.	3	2.5-4	3	2.25-3
* 9.	1	1-1.75	1	1-1.75
*10.	1	1-1	1	1-1
*11.	1	1-2	1	1-2
*12.	2	1.25-2	2	1.25-2
*13.	2	2-3	2	2-3
*14.	2	1.25-2	2	1.25-2
*15.	3	2-3	3	2.25-3
*16.	3	2.25-3	3	3-3
*17.	3	3-3.75	3	3-3
*18.	2	2-3	2	2-3
*19.	3	2.25-3	3	3-3
*20.	2	2-3	2	2-3
*21.	2.5	2-3	2	2-3

Summary of Changes Between Rounds

Change of Median		Convergence		Divergence	No Change in Range	
Up	1	Both ends	1		Ends equal	6
Down		One end	5	1	Ends not equal	7

means of allowing for variations that are due to program differences as well. Table 19 presents these items on the questionnaire. For ease of reference, the tabulation of the results will be only in terms of the median and middle 50% on each item.

Table 27 presents the results on this portion of the Delphi for Round I. As one would expect, the respondents provided generally larger numbers for secondary school enrolment figures and teacher numbers than for elementary schools. It is interesting to note, however, that on the class size factors, the figures are almost indentical for the two sectors. Table 28 provides the Round II responses on the same items. Comparison of the Round I and Round II responses can be found on table 29. In general, it can be seen that there was not much change between Rounds I and II on these items. On five items, there was a change in the value of the median between rounds one and two. Since this shift was accompanied in four of the items, by a narrowing of the interquartile range, we can consider this as a reflection of a convergence of opinion on the part of the panel. A total of 12 items (including the four above) showed convergence in the middle 50% range as a result of feedback, while only one showed a minute divergence (0.5) at one end. Two of the items showed no change at all as a result of feedback: items 1 (b) and (c), relating to the optimal and maximum number of students at the elementary level. The most dramatic shift in the middle 50% range was on item 2b.

It can be seen that most of the items achieved a fairly high level of consensus by the end of the second round.

Implications. From the results of the Delphi on quality education at the Dufferin Board, one can draw a number of conclusions. First, it was seen that, on the set of elementary (K-8) objectives, the ratings were consistently very

TABLE 27. DUFFERIN BOARD - QUALITY EDUCATION:
STRUCTURAL COMPONENTS - ROUND I

Item	Description	Median	Middle 50%
Elementary			
1. (a)	Minimum number of students	300	212.5-300
(b)	Optimal number of students	400	350-475
(c)	Maximum number of students	500	500-587.5
(d)	Minimum number of teachers	16.5	13-20
(e)	Optimal number of teachers	27.5	22.5-35
(f)	Minimum class size	17.5	12-20
(g)	Optimal class size	23.5	19-25
(h)	Maximum class size	30	24-31
Secondary			
2. (a)	Minimum number of students	500	500-750
(b)	Optimal number of students	800	762-1000
(c)	Maximum number of students	1200	1000-1275
(d)	Minimum number of teachers	35	27.5-45
(e)	Optimal number of teachers	50	50-55
(f)	Minimum class size	17.5	14.5-21
(g)	Optimal class size	22.5	20-25
(h)	Maximum class size	29	26.5-30

TABLE 28. DUFFERIN BOARD - QUALITY EDUCATION: STRUCTURAL COMPONENTS - ROUND II

Item	Description	Median	Middle 50%
Elementary			
1. (a)	Minimum number of students	250	250-300
(b)	Optimal number of students	400	350-475
(c)	Maximum number of students	500	500-587.5
(d)	Minimum number of teachers	17	15-18
(e)	Optimal number of teachers	25	25-28
(f)	Minimum class size	17.5	13-20
(g)	Optimal class size	23.5	20-25
(h)	Maximum class size	30	28-30
Secondary			
2. (a)	Minimum number of students	500	500-587.5
(b)	Optimal number of students	800	800-875
(c)	Maximum number of students	1200	1050-1200
(d)	Minimum number of teachers	32	30-36.5
(e)	Optimal number of teachers	50	50-53.75
(f)	Minimum class size	17.5	15-20
(g)	Optimal class size	21	20-25
(h)	Maximum class size	29	26-30

TABLE 29. DUFFERIN BOARD - QUALITY EDUCATION: STRUCTURAL COMPONENTS - ROUND I VS. ROUND II

Item	Description	Round I Median	Round I Middle 50%	Round II Median	Round II Middle 50%
Elementary					
1. (a)	Minimum number of students	300	212.5-300	250	250-300
(b)	Optimal number of students	400	350-475	400	350-475
(c)	Maximum number of students	500	500-587.5	500	500-587.5
(d)	Minimum number of teachers	16.5	13-20	17	15-18
(e)	Optimal number of teachers	27.5	22.5-35	25	25-28
(f)	Minimum class size	17.5	12-20	17.5	13-20
(g)	Optimal class size	23.5	19-25	23.5	20-25
(h)	Maximum class size	30	24-31	30	28-30
Secondary					
2. (a)	Minimum number of students	500	500-750	500	500-587.5
(b)	Optimal number of students	800	762-1000	800	800-875
(c)	Maximum number of students	1200	1000-1275	1200	1050-1200
(d)	Minimum number of teachers	35	27.5-45	32	30-36.5
(e)	Optimal number of teachers	50	50-55	50	50-53.75
(f)	Minimum class size	17.5	14.5-21	17.5	15-20
(g)	Optimal class size	22.5	20-25	21	20-25
(h)	Maximum class size	29	26.5-30	29	26-30

Summary of Changes Between Rounds

Change of Median		Convergence		Divergence	No Change
Up	4	Both ends	7		2
Down	1	One end	5	1	

high, with a high degree of consensus. On secondary objectives (9-13), the ratings were still quite high, but with greater variability. Interestingly, the highest ratings were given to the major curriculum areas. The results of the questions on the structural system components also presented a high degree of consensus by the group. Both at the elementary and secondary level, the group was able to narrow in on the specific numerical constraints associated with educational programs. If these results prove to be typical of small boards, they may provide useful guidelines to school board administrators when contemplating structural changes as a result of declining enrolments.

2. Peel

As with the Dufferin Board, the results of the Delphi study on quality education at the Peel Board will be analyzed separately for the elementary, secondary and structural components of schools, in the following sections.

Elementary Objectives (K-8). The same set of objectives were presented to this panel as to the respondents at the Dufferin Board. Tables 15,16 and 17 present the Primary, Junior and Primary and Junior objectives, respectively, as provided to the sample. The results of Round I of the elementary set of objectives is presented in table 30. No new items were added to the original list. As with the Dufferin Board, the great majority of the items had a rating of 1. Only eight items were given a median rating of 2, but there seems to be no consistency in level at which these ratings were given. At each level, the great majority of items received a rating of 1.

For Round II, the questionnaires were returned to the respondents with the median and middle 50% for the group at the Board, along with their own responses to Round I. The results of the second round are presented in table 31. A brief inspection of this table reveals even a greater preponderance

TABLE 30. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION: PEEL BOARD ROUND I ELEMENTARY OBJECTIVES

	Elementary Objectives	Rating 1	2	3	4	5	Median	Middle 50%
PRIMARY	1.	8	1				1	1-1
	2.	7	2				1	1-1
	3.	8	1				1	1-1
	4.	8	1				1	1-1
	5.	8		1			1	1-1
	6.	7	2				1	1-1
	7.	4	2	2	1		2	1-2.75
	8.	8	1				1	1-1
	9.	5	3	1			1	1-2
JUNIOR	10.	8	1				1	1-1
	11.	7	2				1	1-1
	12.	5	3	1			1	1-2
	13.	4	4	1			2	1-2
	14.	5	4				1	1-2
	15.	3	2	4			2	1.25-3
	16.	7	1	1			1	1-1
	17.	3	5	1			2	1.25-2
	18.	8	1	1			1	1-1
	19.	5	4				1	1-2
	20.	7	2				1	1-1
PRIMARY & JUNIOR	21.	5	1	3			1	1-2.75
	22.	5	2	2			1	1-2
	23.	4	2	3			2	1-2.75
	24.	4	2	3			2	1-2.75
	25.	8		1			1	1-1
	26.	8		1			1	1-1
	27.	7	1		1		1	1-1
	28.	6	3				1	1-1.75
	29.	5	3	1			1	1-2
	30.	4	3	2			2	1-2
	31.	4	4	1			2	1-2
	32.	5		4			1	1-3
	33.	5		4			1	1-3
	34.	8		1			1	1-1

TABLE 31. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION: PEEL BOARD ROUND II ELEMENTARY OBJECTIVES

	Elementary Objectives	Rating 1	2	3	4	5	Median	Middle 50%
PRIMARY	1.	10					1	1-1
	2.	10					1	1-1
	3.	10					1	1-1
	4.	8	2				1	1-1
	5.	9	1				1	1-1
	6.	10					1	1-1
	7.	5	3	1	1		1.5	1-2
	8.	10					1	1-1
	9.	6	4				1	1-2
JUNIOR	10.	10					1	1-1
	11.	10					1	1-1
	12.	9	1				1	1-1
	13.	6	4				1	1-2
	14.	8	2				1	1-2
	15.	3	5	2			2	1.5-2
	16.	9	1				1	1-1
	17.	4	6				1	1-2
	18.	8	1	1			1	1-1
	19.	8	2				1	1-1
	20.	9	1				1	1-1
PRIMARY & JUNIOR	21.	6	3	1			1	1-2
	22.	5	4	1			1.5	1-2
	23.	5	3	2			1.5	1-2
	24.	6	3	1			1	1-2
	25.	9	1				1	1-1
	26.	9	1				1	1-1
	27.	9			1		1	1-1
	28.	9	1				1	1-1
	29.	8	2				1	1-1
	30.	4	5	1			2	1-2
	31.	4	4	2			2	1-2
	32.	5	2	3			1.5	1-2.5
	33.	5	2	3			1.5	1-2.5
	34.	8	2				1	1-1

TABLE 32. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION: PEEL BOARD - ROUND I VERSUS ROUND II - ELEMENTARY OBJECTIVES

	Elementary Objectives	Round I		Round II	
		Median	Middle 50%	Median	Middle 50%
PRIMARY	* 1.	1	1-1	1	1-1
	* 2.	1	1-1	1	1-1
	* 3.	1	1-1	1	1-1
	* 4.	1	1-1	1	1-1
	* 5.	1	1-1	1	1-1
	6.	1	1-1	1	1-1
	* 7.	2	1-2.75	1.5	1-2
	* 8.	1	1-1	1	1-1
	* 9.	1	1-2	1	1-2
JUNIOR	* 10.	1	1-1	1	1-1
	* 11.	1	1-1	1	1-1
	* 12.	1	1-2	1	1-1
	13.	2	1-2	1	1-2
	* 14.	1	1-2	1	1-2
	* 15.	2	1.25-3	2	1.5-2
	* 16.	1	1-1	1	1-1
	* 17.	2	1.25-2	1	1-2
	* 18.	1	1-1	1	1-1
	* 19.	1	1-2	1	1-1
	* 20.	1	1-1	1	1-1
PRIMARY & JUNIOR	* 21.	1	1-2.75	1	1-2
	22.	1	1-2	1.5	1-2
	* 23.	2	1-2.75	1.5	1-2
	* 24.	2	1-2.75	1	1-2
	* 25.	1	1-1	1	1-1
	* 26.	1	1-1	1	1-1
	* 27.	1	1-1	1	1-1
	* 28.	1	1-1.75	1	1-1
	* 29.	1	1-2	1	1-1
	* 30.	2	1-2	2	1-2
	* 31.	2	1-2	2	1-2
	* 32.	1	1-3	1.5	1-2.5
	* 33.	1	1-3	1.5	1-2.5
	* 34.	1	1-1	1	1-1

*Items which indicate consensus.

of items rated at 1, with some of the 2's replaced by a score of 1.5. For a more detailed analysis of the comparison of Round I and Round II results, table 32 is presented. It can be seen that on eight of the items there was a shift in the value of the median. Of these, 5 were accompanied by a convergence in the middle 50% range as well. Therefore, these five can be considered as having come closer to a convergence on group consensus. Eleven of the items showed a clear convergence, while one indicated slight divergence in the second round. Twenty of the items did not change at all between rounds. Table 33 summarizes these results. Overall, all but four of the thirty-four items can be seen to have achieved consensus on their median ratings by the group. Indeed, twenty of these have equal bounds on their interquartile range.

Table 33. Summary of Changes Between Rounds-Elementary: Round I versus Round II

Change of Median		Convergence		Divergence		No Change in Range	
Up	5	Both ends	1			Ends equal	16
Down	3	One end	10	1		Ends not equal	4

It is also interesting to note that all but four of the items have a median rating better than 2.

Secondary Objectives (9-13). The set of objectives on secondary education which was presented to the panel was presented in table 18. As a result of the first round of questioning, no new items were added to the questionnaire. The results of Round I are presented in table 34. It can be seen that the ratings on the secondary objectives, though still high, provide more variability in their medians than for the elementary objectives. The results of Round II are provided in table 35. A visual inspection does not reveal much change from Round I. The comparison of Rounds I and II can be seen in table 36. Overall, there is not

TABLE 34. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION
PEEL BOARD - ROUND I - SECONDARY

Secondary Objectives	Rating 1	2	3	4	5	Median	Middle 50%
1.	7	2				1	1-1
2.	6	2	1			1	1-1.75
3.	5	4				1	1-2
4.	6	1	2			1	1-1.75
5.	8	1				1	1-1
6.	7	2				1	1-1
7.	7		2			1	1-1
8.		5	2	2		2	2-3
9.	8	1				1	1-1
10.	6	2	1			1	1-1.75
11.	5	4				1	1-2
12.	4	3	2			2	1-2
13.	4	2	3			2	1-2.75
14.	7	0	2			1	1-1
15.	5	4				1	1-2
16.	3	2	4			2	1.25-2.75
17.	3	1	5			3	1.25-3
18.	3	2	4			2	1.25-2.75
19.	-	3	5			3	2-3
20.	4	1	4			2	1-3
21.	5	2	2			1	1-2

TABLE 35. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION: PEEL BOARD - ROUND II - SECONDARY

Secondary Objectives	Rating 1	2	3	4	5	Median	Middle 50%
1.	9	1				1	1-1
2.	7	2	1			1	1-1.5
3.	6	4				1	1-2
4.	6	2	1			1	1-1.75
5.	10					1	1-1
6.	10					1	1-1
7.	7	2	1			1	1-1.5
8.	2	7		1		2	2-2
9.	8	1		1		1	1-1
10.	7	2	1			1	1-1.5
11.	8	2				1	1-1
12.	4	5	1			2	1-2
13.	4	5	1			2	1-2
14.	8	2				1	1-1
15.	6	3	1			1	1-2
16.	3	4	3			2	1.5-2.5
17.	3	3	3		1	2	1.5-3
18.	3	5	2			2	1.5-2
19.		3	7			3	2.5-3
20.	3	3	3		1	2	1.5-3
21.	6	2	2			1	1-2

TABLE 36. DELPHI QUESTIONNAIRE ANALYSIS - QUALITY EDUCATION: PEEL BOARD - ROUND I VERSUS ROUND II - SECONDARY

Item	Round I Median	Round I Middle 50%	Round II Median	Round II Middle 50%
* 1.	1	1-1	1	1-1
* 2.	1	1-1.75	1	1-1.5
* 3.	1	1-2	1	1-2
* 4.	1	1-1.75	1	1-1.75
* 5.	1	1-1	1	1-1
* 6.	1	1-1	1	1-1
7.	1	1-1	1	1-1.5
* 8.	2	2-3	2	2-2
* 9.	1	1-1	1	1-1
* 10.	1	1-1.75	1	1-1.5
* 11.	1	1-2	1	1-1
* 12.	2	1-2	2	1-2
* 13.	2	1-2.75	2	1-2
* 14.	1	1-1	1	1-1
* 15.	1	1-2	1	1-2
* 16.	2	1.25-2.75	2	1.5-2.5
17.	3	1.25-3	2	1.5-3
* 18.	2	1.25-2.75	2	1.5-2
* 19.	3	2-3	3	2.5-3
* 20.	2	1-3	2	1.5-3
* 21.	1	1-2	1	1-2

*Items on which consensus occurred.

Summary of Changes Between Rounds

Change of Median		Convergence		Divergence	No Change	
Up	1	Both ends	2		Ends equal	5
Down		One end	7	1	Ends not equal	5

much change in evidence between the two rounds. Ten of the twenty-one items did not change at all, and only one item rated a change in its median, number 19, going from a rating of 3 to 2. Since this change was not accompanied by much of a change in the interquartile range, we cannot assume that it indicates much of a convergence of opinion. On nine of the items, there was a clear convergence on the interquartile range, while on one item, there was divergence. In all, consensus can be said to have taken place on all but two of the items on this set of objectives. Only one objective had a rating of 3, and this was objective 19. This objective related to offering programs in conjunction with community agencies. The remainder all were rated as 1 or 2.

Structural Components. The items on the structural components on the Delphi questionnaire were presented on table 19. The panel's responses at the Peel Board for Round I of the Delphi are presented in table 37. In general, one can see that the numerical components here, as at the Dufferin Board, are larger for the secondary than the elementary section, except in class size. In fact, in this case, the minimum class size is felt to be larger at the elementary than the secondary level.

Round II responses are presented in Table 38, along with a comparison to the Round I responses. It can be seen that, as a result of iteration, convergence occurred on all the items but the first on the questionnaire, even in the three cases where there was a shift in the median response. Thus, one can consider all the items as having achieved a measure of consensus by the group.

Implications. The results of the Delphi on quality education at the Peel Board has many similarities to the results at the Dufferin Board. In both boards, the objectives on the elementary sector (K-8) had very high ratings, with a high

TABLE 37. PEEL BOARD - QUALITY EDUCATION: STRUCTURAL COMPONENTS - ROUND I

Item	Description	Median	Middle 50%
Elementary			
1. (a)	Minimum number of students	300	250-300
(b)	Optimal number of students	400	325-600
(c)	Maximum number of students	500	400-800
(d)	Minimum number of teachers	12	12-14
(e)	Optimal number of teachers	17.5	14-30
(f)	Minimum class size	20	20-24.25
(g)	Optimal class size	25	25-27.5
(h)	Maximum class size	30	28.5-30.75
Secondary			
2. (a)	Minimum number of students	800	775-900
(b)	Optimal number of students	1200	1112.25-1200
(c)	Maximum number of students	1400	1325-1450
(d)	Minimum number of teachers	44	34-52.5
(e)	Optimal number of teachers	70	65-71
(f)	Minimum class size	17.5	15-21
(g)	Optimal class size	25	24.5-25.5
(h)	Maximum class size	30	30-31

TABLE 38. PEEL BOARD - QUALITY EDUCATION:
STRUCTURAL COMPONENTS - ROUND I VS. ROUND II

Item	Description	Round I		Round II	
		Median	Middle 50%	Median	Middle 50%
Elementary					
1. (a)	Minimum number of students	300	250-300	300	250-300
(b)	Optimal number of students	400	325-600	400	355-475
(c)	Maximum number of students	500	400-800	550	400-675
(d)	Minimum number of teachers	12	12-14	12	11-12
(e)	Optimal number of teachers	17.5	14-30	17.5	14-20
(f)	Minimum class size	20	20-24.25	20	20-21.5
(g)	Optimal class size	25	25-27.5	25	25-26.75
(h)	Maximum class size	30	28.5-30.75	30	28.5-30
Secondary					
2. (a)	Minimum number of students	800	775-900	800	800-825
(b)	Optimal number of students	1200	1112.25-1200	1200	1150-1200
(c)	Maximum number of students	1400	1325-1450	1400	1375-1400
(d)	Minimum number of teachers	44	34-52.5	45	41.75-50
(e)	Optimal number of teachers	70	65-71	70	67.5-70
(f)	Minimum class size	17.5	15-21	16.45	15-19
(g)	Optimal class size	25	24.5-25.5	25	24.5-25
(h)	Maximum class size	30	30-31	30	30-30

Summary of Changes Between Rounds

Change of Median		Convergence		Divergence	No Change
Up	2	Both ends	7	0	1
Down	1	One end	9	0	

level of consensus by the panel. On secondary objectives (9-13) the ratings were still high, but had greater variability. The Peel Board's ratings on this segment appeared to have somewhat higher ratings than those of the Dufferin Board. An interesting difference emerged in the responses to the structural components of the two boards. Although both agreed on the range of enrolments required at the elementary level, the larger board (Peel) provided a distinctly higher set of figures for enrolments at the secondary level. The Peel Board also had somewhat lower responses to the number of teachers at the elementary level than did the Dufferin Board. At the secondary level, the Peel Board indicated a need for greater number of teachers but about the same class sizes. These differences quite likely reflect differences in the scale at which the boards are accustomed to operating.

D. Summary and Conclusions

This report presented the results of two Delphi Studies conducted at the Peel and Dufferin Boards of Education. One of these studies was to attempt to draw some consensus regarding the curriculum services provided by the Boards to the school level by the primary recipients of those services: teachers and principals. It is hoped that provision of the results of the study can be of assistance to school board administrators in making decisions during periods of contraction concerning the services which must be protected at the board level and those which can be removed or reallocated to the level of the schools.

The second Delphi study dealt with the highly subjective and often difficult to deal with area of "quality education." The same two school boards were used for conducting this study as well. The components of quality education which were tested were defined by the objectives presented

in the Ministry of Education's guidelines for elementary and secondary education. A section on structural components was included in the study to aid in the definition of acceptable statistical elements of elementary and secondary schools: enrolment, teachers and class size. The results of this study showed some interesting findings. Among them, the strong preponderance of the majority of educators (at both elementary and secondary levels) to rate the primary level objectives in the highest category. Although the two boards showed some differences in their desired figures on the enrolment items, the differences were not extreme.

It is hoped that the use of both a large and a small board in this study, such as Peel and Dufferin, can prove useful for boards of various sizes in utilizing the results of this study. The Delphi technique that was used herein can be used by Boards for running their own studies on issues relevant to the declining enrolment problem.

References

S. Padro, Information System: Analysis for the Peel Board of Education, Vols. I-II, Department of Educational Planning, The Ontario Institute for Studies in Education, 1977.

S. Padro, Information Analysis for School Board Planning and Management: Dufferin Board of Education, Vols, I-III, Department of Educational Planning, The Ontario Institute for Studies in Education, 1977.

Ontario Ministry of Education, The Formative Years, Toronto, 1975.

_____. Secondary School Diploma Requirements Circular H.S.1, 1977-78, Toronto, 1977.